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SAN FRANCISCO STATE NORMAL SCHOOL

MONOGRAPH SERIES—B

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# Outlines of General Knowledge and Current Intelligence

Representing the desired Preparation of Students in High
Schools who intend to enter the State Normal School
at San Francisco to be trained as Teachers for
Service in the Public School System

UNIV. OF
CALIFORNIA

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# PUBLICATIONS FROM THE SAN FRANCISCO STATE NORMAL SCHOOL.

**The Teachers' Bulletins.** Some years ago the San Francisco State Normal School undertook the publication of courses of study for teaching the various subjects of the curriculum of the elementary school. These courses were prepared by members of the faculty and were the outgrowths of daily experience in directing and supervising the teaching by student teachers in the Normal Elementary School. The original purpose of these publications was to furnish to these student teachers directions for teaching each of the subjects. An essential necessity in their construction was that they should be very explicit, specific and practicable in use. Gradually there grew a demand for them by teachers in the public schools, and the Normal School began to print larger editions in order to fill this new need. The demand from the public school sources has now grown to such proportions that one chief service of the institution is that of pedagogical publications. During the period from July, 1911, to November, 1913, there have been sold and distributed to teachers 25,496 of these courses of study.

**Pupils' Exercise Books.** Up to 1912 the publications had been confined to courses of study for the assistance of teachers. During 1912 the publication of pupils' exercise books, accompanying the teachers' bulletins was commenced. In these exercise books the pupils write directly in printed lessons. This device saves a large amount of labor and time of the teacher in copying upon the board, and in oral instructions. Further, it saves the pupils' time in copying from the board. But pupils can make progress two or three times faster than by the usual method, and the work is done much more effectively and without this sense of drudgery either to pupil or teacher. The exercise books are printed upon paper that will take ink. They cost little or no more than the common blank books of the same quality of paper. Although this type of publication was not begun until July, 1912, there have been sold during the fourteen months up to November, 1913, 40,090 copies.

**Monographs.** With this issue there is commenced a series of monographs of a practical nature, aimed to assist or suggest further development of a greater efficiency of school instruction.

**System of Publication.** The expense of these publications is borne chiefly by a revolving fund obtained by their sale. They are printed in the State Printing Office and sold practically at manufacturing cost. They are issued merely upon the authority of the individual authors and the editor of the series, and do not represent a general or necessarily permanent policy of the school, nor a consensus of its faculty or trustees.

**How to Order.** All orders must be accompanied by school district warrant check, money order or stamps. As most of the purchases of bulletins and pupils' exercise books are now made by the school districts, teachers who send orders should be careful to secure the signature of trustees to warrants in payment for orders, so that delays may be avoided. Be careful, also, in filling out orders that the bulletins are listed and are not out of print **Make all warrants or orders payable to "Bulletin Fund, San Francisco State Normal School."**

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## MONOGRAPHS.

**Monograph A.** A remedy for Lock-Step Schooling; a preliminary report upon the weakness and impossibilities of the class system of instruction, and progress to date in substituting therefor an individual system of teaching. By Frederic Burk. Issued free upon application.

**Monograph B.** Outline courses in general information and current intelligence; topics of study for students in high schools preparing for training as teachers.

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(Continued inside back cover.)

# PURPOSES OF THESE OUTLINES.

These outlines aim to indicate the materials of common information and human feeling which constitute a general social and civic intelligence. The effort has been made to select the materials of common usage in the world of every day intelligence, and to omit those things, frequently taught in schools, only to be quickly forgotten because usual life experience does not call for exercise in their use. It is the duty of the school system to furnish its students with some such general educational equipment suitable to the needs of all people, regardless of probable vocation or special pursuit in life. If the school system can, in addition, equip its students with an effective vocation then the school system does all that

Monograph Series B—Outline courses in general information and general intelligence. This monograph undertakes to map out the beginning of a reorganization of the high school course of study, not only for the better preparation of those intending to become teachers, but also in the general cause of wider preparation of all students in industrial, civic and social intelligence. Price, 25 cents. To students intending to enter the San Francisco State Normal School the monograph will be sent free.

Section I printed as separate pamphlet. American History and Civics. By P. F. Valentine; *price 10 cents.*

Section II printed as separate pamphlet. General History, Science, and Literature; *price 10 cents.*

Section III printed as separate pamphlet. Spelling, Language and Grammar: *price 10 cents.*

the normal course of training far easier and much more profitable and thorough in its equipment of teachers.

3. We do not seek the establishment, in high schools, of classes special to the preparation to the normal schools. All that is special and technical to teaching is clearly the business of the normal school to teach. The general education, prior to the special training in the normal school, should cover the same fields of general intelligence to which all other students in the high school are entitled. The knowledge which in the normal students will, as teachers, be later called upon to teach is this same body of general knowledge. The preparation which is best for all students is also the best possible preparation for those entering a normal school. Therefore, as a third purpose we would offer these outlines, not

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in the spirit of a request for special preparation for this normal school, but as materials which legitimately come within the scope of general high school education. We are not unmindful of the earnest and zealous efforts of the high schools to make their courses efficient for practical life service, and we are keenly aware of the many difficulties under which they labor in the necessities of preparing students both for universities and the vocations of life. These conflicting requirements have heretofore made it practically impossible for the high schools to develop and maintain education in the common cause of world intelligence. The standard university requirements, for admission to desirable departments, have used so much high school time in the study of dead languages, in the grammar of foreign languages, in the pursuit of theoretical and impractical mathematics, and in the memorizing of scholastic details in history, science and literature having very little significance, that there has been no time available for the larger, more practical and human education in the materials with which the intelligent world requires all to be somewhat familiar. This conflict in education is now rapidly coming to issue and it can not but finally be decided in favor of the used, rather than of the unused forms of education.

**Method of Use.**—These outlines are prepared to be used in high schools in a variety of ways.

1. They may be distributed to students who expect to enter the San Francisco Normal School or to others who may desire them as guides to self instruction and reading, independent of any school class work or teacher's assistance. They may be issued to students now in their senior year and to those in lower classes as well.

2. If principals or teachers feel so inclined we should be glad that students should receive from them any suggestions, modifications or assistance they may be willing personally to give. Particularly in the matter of references to the best books and sources of preparation outside of texts—histories, historical novels, literature, magazines, special articles, etc.

3. Should any school feel that classes, either exclusively made up of those expecting to enter the San Francisco Normal School or general classes, in which the work here outlined is offered as elective with dead or foreign languages, traditional mathematics, text history or technical English courses, etc., we should be of course quite willing to admit students, graduated upon this basis, who are recommended.

**What is Education.**—The criticism will be made that these items in the fields of general knowledge cover a very wide range and call for a great deal of study if pursued in the spirit indicated. Well, with which of these items may an intelligent life easily do without? We do not assert that the materials called for hit the mark of common intelligence exactly every time, that nothing of value is omitted or that every item has a right to its place. But the principle they attempt to exemplify is clear enough. In this light may it not be properly asked in return, whether high school students would not be more profitably employed in pursuit of this type of education rather than in cramming the dead paradigms of Latin grammar, the impractical theories of school algebra and geometry, the rules of grammar of the modern languages, the endless details of scholastic history, literature and science which tradition has established and of which in later life the pupils remember only that they have forgotten them. Rarely have they occasion to regret the loss. It is pitiable that entrance upon higher education, such as universities should offer, is permitted only by the exaction of such mental toll as that now required, and that all who do not enter these institutions must pay the toll just the same.

There is a modern cry that we should teach the living things of the present, and not teach, except in special schools for a technical purpose, the dead things of the past. To this cry we are in hearty accord; and those events, persons, and issues of the past that still live in our modern world of general social intelligence justify their right in the school courses of study, but those matters which the intelligent world has forgotten should also be forgotten by the schools.

**Specialization.**—The San Francisco State Normal School has centered its energies in the preparation of teachers in the standard subjects of the elementary schools. Departments have never been established for the training of supervisors and special teachers of music, art, domestic science, industrial training and agriculture. If, with additional equipment, the institution should ever enter these fields of special training then it would be expected that students, entering for any of these purposes, should come equipped in preparatory schools in the general knowledge and experience in these subjects, preliminary to training in the arts of their instruction.

**Compilers.**—These outlines have been prepared by members of the Normal School faculty. Mr. P. F. Valentine has prepared the outlines of American History and Civics, and has assisted in the preparation of the Literature. Mrs. M. A. English has prepared the outline of Physiology and Mr. A. B. Anderson that of Physical Geography. Mr. A. S. Boulware and Miss Ethel G. Smith have prepared the language outline, and assisted in the arrangement of the spelling and grammar. The other subjects have been compiled by Frederic Burk.

## SECTION I.

# AMERICAN HISTORY.

In presenting the following outlines as an index to the history requirements for admission to the San Francisco Normal School, we wish, at the outset, to warn the student against the idea that a definite knowledge of all the minor details here included is required. Where it is hereinafter indicated, such definite knowledge will be considered desirable, and is likely to be required in examination. But in the broad story of American history, as presented under the head, **General Outline,** any examination that may be given will seek to test the student's grasp of the larger phases of the subject, as, for example, colonial life, the quarrel between England and the colonies, the political influence of Jefferson, a discussion of great inventions, or any other broad topic of a reasonable nature. An accurate knowledge of the chronology of important facts will also be considered essential; but by chronology we do not mean dates, except in a few specified cases, so much as we mean sequence—the order of events, so to speak—and the historic period to which the events belong. To facilitate this chronology, the **General Outline** has been divided into periods, each representing some definite era in the development of the nation.

The **General Outline** has been constructed with considerable attention to detail, in order that it may serve as a guide in the student's preparation of the subject. The broad knowledge of the subject which we consider desirable not only in the preparation of a teacher, but in the preparation of any one for the common walks of life, can not be acquired in any superficial way. It can only be acquired by a study of the smaller facts, from which the larger conceptions grow. By using the **General Outline** as a guide, and with the aid of a good, up-to-date text-book, the student should be able to prepare herself in the big, substantial, life-serving factors of American history.

In addition to the **General Outline,** a number of specific, integrated items, under the head, **Items of General Intelligence,** are presented. These represent a minimum summary of miscellaneous facts of common knowledge. They are the every-day, used facts of American history, and are consequently of prime importance. The student should possess a knowledge of all these facts to the extent indicated.

We believe that a knowledge of political history is desirable to the extent that it makes clear some of the large issues that have grown into our contemporary political life, and explains the prevailing factors that have given complexion to the great political parties. As a guide for the student in preparing this branch of the subject, a detailed outline is provided. But here, again, the mistake must not be made of thinking that the details represent an index to the formal requirements. The details serve merely as a guide in the direction of the reading. They are the materials from which the structure of the larger ideas is to be built. No test that we might give in this branch would require the ability to iterate small details.

The story of territorial growth and the expansion of settlement is a narrative of inspiring and patriotic interest that every teacher and every citizen should know. For entrance to the Normal School, no minute and judicial knowledge of the subject will be required. What we want is a possession of the simple facts of territorial acquisition and growth, coupled with the ability to tell the dramatic, soul-stirring, supremely human epic of the people in their surging westward march. To facilitate this, a separate outline is offered. Students may obtain considerable assistance by use of Bulletin No. 12, listed upon the cover pages of this monograph.

## GENERAL OUTLINE.

The purpose of this outline, and the method of use, are clearly indicated in the foregoing introduction to the subject.

### 1. PRE-COLUMBIAN PERIOD.

(About 1000 to 1492.)

I. **The Norsemen.**
   1. Native land.
   2. Habits and customs.
   3. Great voyage and discovery with which they are credited.

II. **Geographical Ideas Prevalent Before Columbus.**
   1. Popular conception of shape of the earth.
   2. Fanciful ideas: *a.* The "Sea of Darkness"; *b.* The "edge of the world"; *c.* Fabulous monsters of the deep, islands, dangers, phenomena.

III. **Popular Conception of the Orient.**
   1. Imputed degree of civilization.
   2. Palaces and cities.
   3. Spectacles of grandeur.
   4. Products and resources ascribed.

IV. **The Trade With the Orient.**
   1. Kinds of goods brought from the East.
   2. Means of carrying goods.
   3. Intrusion of Turks, and result.

V. **The New Conception of the Earth.**
   1. Nature of the new conception.
   2. Its effect upon activities in navigation.
   3. Suggested new route to India.

VI. **The Voyage of Columbus.**
   1. What it proved about the new conception.

## 2. PERIOD OF DISCOVERY AND EXPLORATION.

(1492 to 1607.)

### I. Characteristics of the Period.

1. Nations engaged in New-World exploration.
2. Incentives to exploration: *a.* Economic; *b.* Religious; *c.* Romantic; *d.* Predatory.
3. Legitimate sea enterprises: *a.* Objects.
4. Buccaneering: *a.* Object and methods.
5. Wanderings on the land: *a.* Weird objects of land explorers; *b.* Accouterments and means of travel; *c.* Portions of North America wandered over; *d.* Nature of hardships and adventures.

### II. Some Typical Voyagers and Explorers.

1. Columbus: *a.* Difficulties in obtaining financial assistance; *b.* Final source of subsidy; *c.* Adventures on the voyage; *d.* Ceremony of landing; *e.* Barbaric procession on return to Spain; *f.* Effect of discovery on sea enterprises; *g.* The return in chains and final ignominy of Columbus.
2. Balboa: *a.* Discovery made by him; *b.* Ceremony of taking possession; *c.* Significance of discovery.
3. Ponce de Leon: *a.* Fantastic object of adventures; *b.* Land wandered over by him.
4. Cortes: *a.* Religious and predatory objects of adventures; *b.* The people conquered by him, their life and culture.
5. Magellan: *a.* Voyage made by him; *b.* Significance of voyage.
6. Drake: *a.* Nationality; *b.* Piratical acts; *c.* Cruise along western coast; *d.* Character and habits of natives met with at Drake's Bay; *e.* Voyage made by him.

## 3. COLONIAL PERIOD.

(1607 to 1775.)

### I. Virginia.

1. Objects and character of first settlers.
2. Early difficulties.
3. Services of John Smith.
4. Establishment: *a.* Dispersed settlements; *b.* Leading agricultural pursuit; *c.* Medium of exchange; *d.* Introduction of slavery.

### II. Massachusetts.

1. Sects of settlers.
2. Reasons for settlement.
3. Early difficulties.
4. Life and customs: *a.* Character of agriculture; *b.* Persecutions and austere practices; *c.* Dress; *d.* Church manners; *e.* The democratic form of town government.

### III. New York.

1. Nationality of first settlers.
2. Social manners of first settlers.
3. The patroon estates.

IV. **Pennsylvania.**
  1. Sect of founders.
  2. Leader.
  3. Belief of founders concerning warfare, equality, justice, display.
  4. Mannerisms in speech.

V. **Rhode Island.**
  1. Founder.
  2. Events leading to founding.
  3. Principles of government and religion instituted.

VI. **Other Colonies.**
  1. Names of other New England colonies.
  2. Names of other Middle and Southern colonies.

VII. **Industry and Commerce in Later Colonial Period.**
  1. New England: *a.* Industries; *b.* Extent of commerce and business activities.
  2. Middle colonies: *a.* Commercial activities; *b.* Agriculture.
  3. Southern colonies: *a.* Staple agricultural products; *b.* Commerce.

VIII. **Life in Later Colonial Period.**
  1. Conditions in the cities: *a.* Streets and street lighting; *b.* Buildings and dwellings; *c.* Water supply and sanitation; *d.* Fire fighting and night watch.
  2. Rural conditions: *a.* Roads and bridges; *b.* Means of travel.
  3. Education: *a.* New England and Southern attitudes; *b.* Extent of public education; *c.* Elementary subjects taught; *d.* Colleges founded.
  4. Social classes in the South: *a.* Planter class; *b.* Poor whites; *c.* Black labor; *d.* Indented servants.
  5. Plantation life: *a.* States containing plantations; *b.* Organization of the plantation; *c.* Social distinctions; *d.* Pastimes and social pleasures.
  6. New England life: *a.* Whether rural or urban, chiefly; *b.* Social diversions; *c.* Democracy.

IX. **The Quarrel With the Mother Country.**
  1. England's attempted regulation of colonial trade and commerce: *a.* Nature of anti-colonial trade laws passed by Parliament; *b.* Colonial smugglers and smuggling; *c.* England's enforcement of regulations; *d.* The tea tax and "tea party."
  2. The stamp act: *a.* Nature and purpose; *b.* Riots; *c.* Significance of "Taxation without representation is tyranny."
  3. The situation in Massachusetts: *a.* Nature of laws especially antagonistic to the colony; *b.* Public opinion in Massachusetts concerning England's policy: *c.* Influence of Samuel Adams and John Hancock.
  4. In the other colonies: *a.* Patrick Henry's influence in Virginia; *b.* Declarations of sympathy with Massachusetts.

## 4. THE PERIOD OF THE REVOLUTION.

(1775 to 1783.)

I. **The Outbreak.**
  1. Organization of minutemen.
  2. Effort to overawe Boston by military force.
  3. Lexington and Concord: *a.* Paul Revere's ride; *b.* The fighting and the retreat.
  4. Battle of Bunker Hill: *a.* Location of Bunker Hill; *b.* Fortification; *c.* Assaults, repulses, and final result.

II. **Declaration of Independence.**
  1. Writings of Thomas Paine: *a.* Their nature.
  2. Influence of Samuel Adams.
  3. Resolutions by Continental Congress: *a.* Their reception by the people.

III. **Better Known Events of the War.**
  1. Choice of commander-in-chief.
  2. Capture of the Hessians: *a.* Weather, condition of river, time; *b.* Crossing the Delaware; *c.* The capture.
  3. The French alliance: *a.* Franklin's service in France; *b.* Character of assistance given.
  4. Valley Forge: *a.* Sufferings, privations, hardships.
  5. Deeds of John Paul Jones: *a.* Kind of services rendered; *b.* Activities among British seaports; *c.* Battle between *Bonhomme Richard* and *Serapis.*
  6. The crime of Benedict Arnold: *a.* Arnold's post of responsibility; *b.* The nature of his crime.
  7. Surrender of Cornwallis: *a.* Place of the surrender; *b.* Part played by the French; *c.* Importance.
  8. The treaty of peace: *a.* Acknowledgment of independence; *b.* The boundaries of the new nation.

## 5. THE PERIOD OF ESTABLISHMENT.

(1783 to 1821.)

I. **Government Under the Articles of Confederation.**
  1. Difficulties of government: *a.* Lack of sources of revenue; *b.* Interstate rivalries; *c.* Helplessness in regulating trade; *d.* Confused coinage.

II. **The Making of the Constitution.**
  1. Primary constructive provisions: *a.* Establishing legislative, executive, and judicial branches; *b.* Providing for postal system and regulation of interstate and foreign commerce; *c.* Enabling the securing of revenues.
  2. Ratification.

III. **The First Years of the New Government.**
  1. Washington's administration: *a.* Beginnings of a Cabinet; *b.* Financial embarrassments and Hamilton's efforts therein; *c.* Origin of political differences; *d.* Election of Adams; *e.* The Farewell Address.

### IV. The Jeffersonian Democracy.

1. Election of Jefferson: *a.* Democratic basis of his political platform.
2. The Jefferson simplicity: *a.* Habits and manners in public and private life.
3. Purchase of Louisiana: *a.* Nation from which purchase was made; *b.* Territorial extent of purchase.
4. The Lewis and Clark expedition: *a.* Purpose of expedition; *b.* Territory traversed; *c.* River explored.
5. The invention of the steamboat: *a.* Popular prejudice, trial and success; *b.* Economic importance of invention.

### V. The War of 1812.

1. Causes: *a.* Interference with American commerce; *b.* Impressment.
2. Progress: *a.* General failure on land; *b.* Victories at sea; *c.* Perry's achievement on Lake Erie; *d.* Capture of city of Washington; *e.* Battle of New Orleans and Jackson's part in it.

### VI. Growth.

1. New states: *a.* General territorial location.
2. The westward march of settlement: *a.* As measured by the Mississippi in 1820.
3. The purchase of Florida.

### VII. Emergence of the Slavery Question.

1. Quarrel over admission of states: *a.* Basis for the quarrel; *b.* Adoption of the compromise policy.

## 6. PERIOD OF EXPANSION AND DISSENSION.

(1821 to 1861.)

### I. Internal Improvements by the National Government.

1. Constitutionality: *a.* Basis of disagreement.
2. Building of canals: *a.* Erie canal; *b.* General canal-building activities.

### II. The Jacksonian Democracy.

1. Jackson's politics and personal characteristics: *a.* Party; *b.* Constituency; *c.* General political principles; *d.* Personal characteristics.
2. Institution of the spoils system: *a.* Nature of the system; *b.* Evils involved.
3. The first crisis over states' rights: *a.* Southern strict construction point of view; *b.* Northern loose construction point of view; *c.* Attitude of John C. Calhoun; *d.* Webster-Hayne debate.

### III. Development of the Slavery Quarrel.

1. Life of the slaves: *a.* Economic dependence of the slaves; *b.* Usual kind treatment on the old plantations; *c.* Disregard for the humanities in the newer slave states; *d.* The overseer system and its cruel effects.

2. The abolitionist movement: *a.* Conception of the negro as a human justly free; *b.* Activities of William Lloyd Garrison; *c.* Influence of Whittier, James Russell Lowell, Wendell Phillips, and others; *d.* Breaking up of abolitionist meetings, destruction of publications, and personal violence.

IV. **Texas and the Mexican War.**

1. The annexation of Texas: *a.* Relations between Texas and Mexico, prior to 1835; *b.* Movement of Americans into Texas; *c.* Revolt of Texans; *d.* Establishment of "Lone Star Republic"; *e.* Annexation.
2. Cause of the Mexican War: *a.* Nature of the dispute.
3. Campaigns: *a.* General results of Taylor's activities; *b.* Scott and the capture of a great city; *c.* Invasion of California by Kearney; *d.* Origin of the "Bear Flag"; *e.* Support given by Fremont, the Pathfinder.
4. Terms of peace: *a.* As bearing on the ownership of territory; *b.* States later made up from territory acquired.

V. **The Title to Oregon.**

1. The dispute and its settlement: *a.* Extent of the Oregon country; *b.* Nation contesting ownership; *c.* Threatened trouble; *d.* Manner and nature of settlement.

VI. **Discovery of Gold in California.**

1. The find: *a.* Discoverer; *b.* Manner of discovery; *c.* Location.
2. The rush: *a.* Effect of discovery in the East; *b.* Crossing the plains, its dangers and hardships; *c.* Other routes to the West.
3. Life at the mines: *a.* Political unsettlement, crimes, summary punishments; *b.* Rough fellowship and excesses of the miners; *c.* Prices and medium of exchange; *d.* Outfits and manner of prospecting.
4. Effects of the discovery: *a.* The effect on population; *b.* The establishment of government; *c.* Statehood.

VII. **The Crisis in the Quarrel Over Slavery.**

1. The Fugitive Slave Act: *a.* Its purpose; *b.* Northern evasion of it.
2. The "underground railway"; *a.* Its purpose and methods.
3. The struggle over Kansas: *a.* Application of Douglas' "popular sovereignty" idea; *b.* The rush for Kansas and resulting violence.
4. The Lincoln-Douglas debates: *a.* Douglas' position on the right of Congress to determine the slavery question for the territories; *b.* Lincoln's position; *c.* Popular manner of conducting the debates.
5. John Brown's raid: *a.* John Brown's attitude toward slavery; *b.* What he purposed to do; *c.* The outcome of the raid; *d.* Death of John Brown.
6. The election of Lincoln: *a.* Party which nominated Lincoln; *b.* Principle upon which the party was organized; *c.* What the election indicated to the South.
7. Secession: *a.* South Carolina's action on the news of Lincoln's election.

## 7. THE PERIOD OF THE CIVIL WAR.

### (1861 to May, 1865.)

I. **The Opening Events.**

1. Formation of the Confederacy: *a.* Extent of secession; *b.* Inauguration of Jefferson Davis.
2. Inauguration of Lincoln: *a.* Lincoln's policy regarding slavery, as expressed in the first inaugural; *b.* His policy as regards the preservation of the Union.
3. Capture of Fort Sumter: *a.* Location of Fort Sumter; *b.* Bombardment and surrender; *c.* Significance.

II. **From Bull Run to Gettysburg.**

1. The battle of Bull Run: *a.* Threatening position of the Confederate army; *b.* The retreat into Washington.
2. The blockade of the Southern coast; *a.* Purpose of the blockade; *b.* Running the blockade.
3. The *Monitor* and the *Merrimac*: *a.* Novel construction; *b.* Location of the battle; *c.* Result.
4. Capture of New Orleans: *a.* Strategic importance of the city.
5. Extensive operations: *a.* General statement of extent of operations and number of battles fought during the first two years.
6. The Emancipation Proclamation: *a.* Its provision; *b.* Lincoln's responsibility for it.
7. Gettysburg: *a.* Location; *b.* General statement concerning mortality; *c.* Occasion of Lincoln's subsequent address there; *d.* Present-day estimate of Lincoln's speech.

III. **From the Fall of Vicksburg to the End of the War.**

1. Vicksburg: *a.* Strategic importance; *b.* Union commander; *c.* Heroic resistance; *d.* Outcome of siege.
2. Sheridan's ride: *a.* Occasion; *b.* Spectacular features.
3. Sherman's march to the sea: *a.* Country crossed; *b.* Desolation wrought.
4. Extensive operations: *a.* General statement of extent of operations and number of battles fought during last two years.
5. Capture of Richmond: *a.* Reason for Richmond's importance; *b.* Union general; *c.* Confederate general; *d.* Surrender at Appomatox; *e.* Result of surrender.
6. Assassination of Lincoln: *a.* Place and means; *b.* Name of assassin.

IV. **The Cost of the War.**

1. Material cost: *a.* General statement concerning the cost in money; *b.* Statement concerning the cost in pensions.
2. The cost that can not be measured: *a.* Number of lives lost; *b.* The direct and indirect suffering caused.
3. The desolation of the South: *a.* Economic effects of the war in the South.

V. **Results of the War.**

1. As affecting the nation: *a.* Preservation of the Union; *b.* Determining the indivisibility of the Union.

2. As affecting the negro: *a*. Settlement of slavery question; *b*. Enfranchisement.

## 8. PERIOD OF RE-ESTABLISHMENT.

(May, 1865, to 1881.)

I. **Reconstruction.**
   1. The problems: *a*. Readmission of states; *b*. Re-enfranchisement of citizens; *c*. Political status of the negro.

II. **The Fruits of the Reconstruction Policy.**
   1. Negro rule in the South: *a*. Political status of best whites; *b*. Civic unfitness of enfranchised negroes; *c*. Negroes in office; *d*. Popular discontent.
   2. "Carpetbag" government: *a*. Origin of "carpetbaggers"; *b*. Self-interested purpose of most of them; *c*. Influence over negro vote; *d*. Political debauchery.
   3. The Ku Klux Klan: *a*. Purpose and methods.

III. **Progress.**
   1. Acquirement of Alaska: *a*. Means of acquirement; *b*. Profitableness of the investment.
   2. Completion of the transcontinental railway: *a*. Chief promoters of the scheme; *b*. Nature of government subsidy; *c*. Eastern and western termini.
   3. Inventions: *a*. Telegraph, dynamo, reaper, hard rubber, sewing machine, anæsthesia, telephone, electric light, dynamite, typewriter, air brake.
   4. Engineering works: *a*. Suspension bridges and jetties.

## 9. THE PERIOD OF INDUSTRIALISM AND POLITICAL REFORM.

(1881 to 1913.)

I. **Forward Movement of the Government.**
   1. Civil service reform: *a*. Assassination of Garfield; *b*. Agitation for reform in method of appointments; *c*. The Civil Service act.
   2. The administration of Grover Cleveland: *a*. Party in power; *b*. Period during which the party had been out of power; *c*. Tendency toward railroad consolidation at this time; *d*. The Interstate Commerce act; *e*. General adoption of Australian ballot; *f*. Method of voting under the Australian system.
   3. The administration of Benjamin Harrison: *a*. Party in power; *b*. Tendency toward concentration of industry and its inherent abuses; *c*. Beginning of Standard Oil Company; *d*. The Sherman Anti-trust act.

II. **Indian Troubles.**
   1. Efforts toward concentrating the Indians: *a*. Press of settlement into Indian lands; *b*. Establishment of reservations; *c*. Resistance and uprisings; *d*. Principal tribes involved.
   2. Custer's defeat: *a*. Place; *b*. Tribe and chief engaged; *c*. Description of fight; *d*. Result.

## III. The Administration of William McKinley.

1. The campaign: *a.* Party supporting McKinley; *b.* Chief opposing candidate; *c.* The "free silver" issue.
2. Outbreak of the Spanish-American War: *a.* Conditions in Cuba; *b.* American sympathies and war talk; *c.* Blowing up of the *Maine.*
3. Events of the Spanish-American War: *a.* Dewey's victory; *b.* Invasion of Cuba; *c.* Destruction of the Spanish fleet.
4. Results of the war: *a.* Territorial results; *b.* Disposition of Cuba; *c.* Rise of the controversy over imperialism; *d.* Trouble in pacifying the Philippines.
5. Acquirement of the Hawaiian Islands: *a.* Means of acquirement; *b.* Commercial and strategic importance of the islands.

## IV. Mechanical and Industrial Progress of the Period.

1. Most important inventions: *a.* Railroad block system, re-enforced concrete, electric railway, long-distance electric transmission, gasoline engine, wireless telegraphy, and many labor-saving devices.
2. Growth of great industries: *a.* General change from small to large-scale production; *b.* Trustification.

## V. Roosevelt's Rise to Influence.

1. Early activities: *a.* Important offices held in New York; *b.* Services in Spanish-American war.
2. Succession to presidency: *a.* Assassination of McKinley; *b.* Re-election as president.

## VI. Features of the Roosevelt Administration.

1. Panama Canal treaty: *a.* Country with which treaty was made; *b.* Acquirement of Canal Zone.
2. Pure food and meat inspection laws: *a.* Arguments urging the adoption of such laws; *b.* Import and provisions of the laws.
3. Prosecutions of trusts and railroads: *a.* Federal laws under which the cases were prosecuted; *b.* Results of the prosecutions as affecting the general problem.
4. The conservation movement: *a.* Roosevelt's sponsorship; *b.* Pinchot's relation to the movement.
6. Reclamation: *a.* Economic importance; *b.* Methods; *c.* Great irrigation projects carried out.
7. Election of William Howard Taft.

## VII. Features of the Taft Administration.

1. The Payne-Aldrich tariff: *a.* Its general character; *b.* Reasons for opposition to it.
2. Progress of the Panama Canal: *a.* Extent of work done; *b.* Sanitary methods used on the work, and results.
3. Effort at reciprocity with Canada: *a.* Nature of proposed agreement; *b.* Outcome of negotiations.
4. The census of 1910: *a.* Approximate population of the United States and dependencies.

5. Establishment of Parcel Post.
6. Birth of the Progressive Party: *a.* Origin; *b.* Its demands with regard to popular government; *c.* Its demands with regard to regulation of working conditions; *d.* Its doctrine of trust regulation; *e.* Its demands with regard to extension of suffrage; *f.* Roosevelt's relation to the party.
7. Election of Woodrow Wilson: *a.* Party electing him.

VIII. **Features of the Wilson Administration.**

1. Woodrow Wilson: *a.* His previous educative position; *b.* His sympathy with progressive ideals; *c.* His official unconventionality, as illustrated in policy of reading his own messages.
2. Amendment to establish popular election of United States senators: *a.* Old method of choosing; the new way.
3. The income tax amendment: *a.* Object of the amendment; *b.* Its relation to the problem of concentration of wealth.
4. The tariff bill of 1913: *a.* Policy of the legislation enacting the bill.
5. The currency legislation: *a.* Flow of deposits to New York banks, and sporadic stringencies resulting; *b.* Need of mobile currency at times of seasonal money demand; *c.* Relation between immobility and financial crises; *d.* How the legislation meets the needs.
6. The Mexican trouble: *a.* Huerta's usurpation of presidential prerogative; *b.* Political and economic chaos in Mexico; *c.* Wilson's policy toward Huerta's government, and principle involved.

# PERIODS IN UNITED STATES HISTORY.

The student should be able to discuss each of the following periods with the idea of explaining the characteristic feature, or features, of the period. In addition, it is expected that the student be able to place each of the **Items of General Intelligence** (q. v.) in their respective period, where it is required to do so. Where this is required, the student may indicate the proper period by using the corresponding Roman numeral.

I. Pre-Columbian Period. (Up to 1492.)
II. Period of Discovery and Exploration. (1492 to 1607.)
III. Colonial Period. (1607 to 1775.)
IV. Period of the Revolution. (1775 to 1783.)
V. Period of Establishment. (1783 to 1821.)
VI. Period of Expansion and Dissension. (1821 to 1861.)
VII. Period of the Civil War. (1861 to 1865.)
VIII. Period of Re-establishment. (1865 to 1881.)
IX. Period of Industrialism and Political Progress. (1881 to 1913).

## ITEMS OF GENERAL INTELLIGENCE.

Under this head is presented a series of isolated items arranged in convenient groups. These items are the facts of American history that most commonly enter into discourse of one kind or another. They are the historical tools, so to speak, that are most frequently used in the intellectual workshop. They should be looked upon, then, as a specific requirement; but no preparation in this part of the subject need exceed the limits indicated in the context. Where it is required that the student indicate the period, same can be done by writing in the Roman numeral corresponding with the proper historic period. (See **Periods in American History,** preceding.)

**Far East.**—Countries composing it; nature of commerce carried on with it in Columbus' time; means by which early navigators hoped to reach it.

**Vikings.**—Native land; manner of life; marauding characteristics; period.

**Voyage of Columbus.**—Columbus' great idea; his early discouragements; part played by Ferdinand and Isabella; object of voyage; tests of Columbus' courage on voyage; result; date.

**Aztecs.**—Location; degree of civilization and illustrations of same; period.

**Sir Francis Drake.**—Buccaneering; great feat accomplished by him; reason for naming Drake's Bay, on the California coast, after him; period.

**Jamestown.**—Location; native land of founders; purpose; early difficulties; historic importance; date.

**Virginia Plantation.**—Products; character of labor used; social life; definition of "planter," "mansion."

**The Pilgrims.**—Native land; reasons for leaving; location of final settlement; early difficulties; date of landing; name of state that grew from their settlement.

**The Puritans.**—Native land; reasons for leaving; location of settlement; some characteristic Puritan ideas and customs; period.

**The Quakers.**—United on ideas concerning what subject? City founded by them; period.

**William Penn.**—Sect; historical importance.

**The City of Brotherly Love.**—Name of city; reason for title here given.

**Cliff Dwellers.**—Peculiarity of homes; present evidences; location.

**Harvard College.**—Location; period.

**Spinning Wheel.**—Use. Where generally found in colonial times?

**The Fur Trade.**—Where carried on; race and character of traders.

**Trading Posts.**—Purpose; kind of country in which located.

**Benjamin Franklin.**—Most famous scientific achievement; ways in which he helped his country; ways in which he helped mankind in general; period.

**The French and Indian War.**—Peoples involved; historic importance; period.

**The Stamp Act.**—By what body was it passed? Purpose of the act. How received? Historic importance.

**"Give Me Liberty or Give Me Death."**—Speaker; occasion; period.

**The Tea Tax.**—By what body enacted? Purpose; nature of objections to it; historic importance; period.

**The Boston Tea Party.**—Description; reason; period.

**Taxation Without Representation.**—Who did the taxing? Who were not represented, and where were they not represented? Why was the arrangement wrong? Historic importance.

**Independence Hall.**—Location; reason for name.

**Lexington and Concord.**—Historic importance; period.

**Minutemen.**—Reason for organization; reason for name; period.

**Bunker Hill.**—Location; historic importance; period.

**Hessians.**—Native land; purpose for which employed; explanation of modern use of term as one of derision; period.

**"Washington Crossing the Delaware."**—Historical importance; difficulties of getting across; period.

"**We hold these truths to be self-evident**: that all men are created equal; that they are endowed by their creator with certain unalienable rights; that among these are life, liberty, and the pursuit of happiness." From what is the quotation taken? Period.

"**When, in the course of human events** * * * " From what is the quotation taken? Period?

**Declaration of Independence.**—Purpose and significance; holiday now celebrated to commemorate it; period.

**French Aid in the Revolution.**—Nature of the assistance; name of great American who secured it.

**Surrender of Cornwallis.**—Who was Cornwallis? To whom did he surrender? Importance of the surrender; period.

**The Thirteen Original Colonies.**—Name several or all of them. What important part, as a group, did they play in our history?

"**We, the People of the United States,** in order to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity * * *." What document begins with the above words? Period when written.

**Alexander Hamilton.**—Member of whose cabinet? Nature of public service; manner of death; period.

**The Constitutional Convention.**—Purpose; period.

"**First in War, First in Peace, First in the Hearts of His Countrymen.**" To whom does the phrase refer?

**Gerrymander.**—Gerrymandering is sometimes done to what kind of districts? How accomplished; purpose.

**The Cotton Gin.**—Purpose; effect on cotton industry; influence on institution of slavery.

**Thomas Jefferson.**—Author of what famous document? Beliefs concerning political rights of common people, and concerning the nature of government. Important political position held by him; period.

**Louisiana Purchase.**—From whom made? General boundaries; period.

**Lewis and Clark.**—Purpose in sending them out; country traversed; great river explored; period.

"**We Have Met the Enemy and They Are Ours.**"—Occasion for the message; trouble going on at the time.

**War of 1812.**—Nations concerned; principal cause; naval features.

**Frontiersmen.**—Definition; manner of life in forest; manner of life on prairie; obstacles overcome; historic significance.

**Protection of Home Industry.**—Definition of "home industry"; method by which it has been protected; name of political party favoring protection. What was the old "infant industry" argument? Explain relation claimed by proponents to exist between protection and industrial prosperity. Between protection and employment of labor. Explain relation claimed by opponents to exist between protection and the trusts. Between protection and cost of living.

**Andrew Jackson.**—Political position; party affiliation; relation to spoils system; meaning and character of "Jacksonian democracy"; period.

**The Spoils System.**—Meaning of term; origin of system; civic and moral vice and power of it; corrective system introduced.

"**To the Victor Belong the Spoils.**"—Origin of term; explanation as used politically.

**The Monroe Doctrine.**—Origin and purpose.

**John C. Calhoun.**—Nature of public service; section represented by him; period.

**Daniel Webster.**—Nature of public service; section represented by him; famous debate; period.

**States' Rights.**—Conception of the Constitution on which the early doctrine was based; explanation of doctrine; section of the country advocating it; opinion of extreme states' rights people on subject of secession;

period of most violent discussion. How does the doctrine apply to conservation to-day?

**Annexation of Texas.**—Country originally owning Texas; nature of quarrel following annexation; result of quarrel; period.

**The Mexican War.**—Cause; location and success of campaigns; great city captured; American commanders; territorial results of war; period.

**The Bear Flag Republic.**—State in which formed; political condition of the state at the time; object in forming the republic; flag adopted; war in which nation was engaged at the time: period.

**The Pioneers.**—Why called the "pathfinders of civilization"? At what period were there pioneers in Kentucky and Tennessee? In the Middle West? In the Far West? Characteristics of pioneer life.

**Discovery of Gold in California.**—Year and location of discovery; name of discoverer; effect of discovery on immigration to California; routes of emigration to California from the East, and dangers and hardships of each; location of early gold regions; character and type of California pioneer; meaning of "prairie schooner," "Golden West."

**The Days of the Don in California.**—Meaning of "Don"; relation of Dons to California history; definition of rancho; period.

**The Donner Party.**—Object of the party and its fate. Period.

**John Brown.**—Cause to which devoted; episode at Harper's Ferry; fate; period.

**Mormons.**—Origin; chief feature of belief; custom that has dishonored the sect; present status of the custom; chief city; name of one or two chief leaders.

**The Election of Lincoln.**—Party affiliation; leading policy of the party; effect of election in the South; year of Lincoln's inauguration.

**The Confederate States.**—Action with regard to the Union; reason for forming the Confederacy.

**Secession.**—Meaning of secession as word is used in American history; body of states that seceded; reason for secession; result; period.

**"This Nation Cannot Exist Half Slave and Half Free."**—Who said this?

**Fort Sumter.**—What struggle began here?

**U. S. Grant.**—Outline of boyhood life; education; social position before war; qualities that won success; military rank; place and occasion of final military triumph; name of general that surrendered to him; political honors.

**The War of the Rebellion.**—What war was this? Causes. Date of beginning. How long did it last?

**Gettysburg.**—Location; historic importance; present use of field; period.

**The Gettysburg Address.**—Orator; occasion; present estimate of address.

**"From Atlanta to the Sea."**—Historic significance; leader; period.

**Assassination of Lincoln.**—Price of crime; year; name of assassin; fate of conspirators.

**Richmond, Virginia.**—Importance in the Rebellion; events associated with it; generals concerned.

"**We Here Highly Resolve,** that these dead shall not have died in vain, that this nation, under God, shall have a new birth of freedom, and that government of the people, by the people, for the people, shall not perish from the earth." Who said this? Occasion.

**The Monitor and the Merrimac.**—Historic event associated with them; period.

**Thirteenth, Fourteenth, and Fifteenth Amendments.**—Amendments to what? Time and purpose of adoption; privileges granted; period.

**Carpetbaggers.**—Origin; place and period of activities; purposes; use of negro vote; general influence. How regarded by better classes?

**Alaska.**—Original ownership; means of acquisition; natural resources.

**Overland Trails.**—Section in which used; uses to which put; period.

**Pack Trains.**—Definition; association with western history.

**Pony Express.**—Description; purpose; romantic associations; period.

**First Transcontinental Railway.**—Story of building; names of principal promoters; importance in California history; land grants; period.

**The Homestead Law.**—Object; section of country most benefited.

**Extinction of the Buffalo.**—How exterminated? Period.

**Custer's Last Fight.**—Location; occasion; outcome; period.

**The Bell Telephone.**—Why called "Bell" telephone? Period of invention.

**Exclusion of the Chinese.**—Meaning of term, "coolies"; reasons for objection to them; means of exclusion.

**Prohibition Party.**—Principal purpose of the party; means by which it seeks to accomplish its end.

**James A. Garfield.**—Political distinction; death; period.

**Civil Service Reform.**—Evil sought to be remedied; method introduced; general extent of reform.

**The Anti-Trust Act.**—Tendency, in the organization of industries, which made the act necessary; danger manifested in this tendency. Give the purpose of the act; tell what is meant by "combination in restraint of trade." Tell what is meant by "trust busting," and give the process of it. What are one or two famous cases of attempted "trust busting"?

**The Interstate Commerce Commission.**—Define interstate commerce. What has the Commission to say about rates for interstate commerce? What are some of the things it seeks to prevent the railroads from doing?

**Grover Cleveland.**—Political position; party affiliation. Not since when had a member of this party held the same position? Period.

**William McKinley.**—Political distinction; party; death; period.

**William J. Bryan.**—Party affiliation and influence in the party. Frequent candidate for what position? Relation to progressive policies and peace movement; position in the Wilson administration; period.

**Hawaiian Islands.**—Means and period of acquirement; commercial and strategic importance.

**Spanish-American War.**—Conditions in Cuba before the war; humanitarian attitude of American people and outcome of same. What gave rise to the cry, "Remember the Maine"? Dewey's achievement; location of most of the land fighting; fate of the Spanish fleet. Give the territorial results of the war as affecting the United States. What policy did the United States adopt with regard to the government of Cuba? What has been the result of the policy? Period of the war?

**The War in the Philippines.**—Problems facing our government in the Philippines, at the close of the Spanish-American War; attitude of the natives and the necessary result; success of Americanizing, to the present date.

**Imperialism.**—Meaning of the term, as used in our country; policy of the anti-imperialists, with regard to the Philippines.

**Theodore Roosevelt.**—Prominence in Spanish-American War; political position; relation to conservation policy; policy with regard to the trusts. What new political party did he help to form?

**William Howard Taft.**—Political position; party; attitude toward policies of the Progressives; period.

**The Hague.**—Location; purpose of the Hague Tribunal; objects of the Hague Conference.

**The New South.**—Condition of the South for twenty years following the Civil war, and reasons for the condition; economic changes during the last thirty years; changes along the lines of education and democracy.

**Disarmament.**—Nature of plan, and result hoped for.

**Reclamation.**—Meaning of reclamation; method of reclaiming arid lands; method of reclaiming swamp and overflow lands; general statement of results of reclamation in the United States; example of Imperial Valley; other examples.

**Conservation of Natural Resources.**—Meaning of conservation; natural resources most seriously concerned; general policy in years past; general statement of present policy. What would a conservationist say to such a statement as this: "Conservation means denying ourselves to-day, that coming generations may have more."

**Panama Canal.**—What is the Canal Zone, and what nation owns it? What is the purpose of the locks? Name some of the most famous engineering achievements of the construction. Why was it impossible for laborers to work on the canal before the United States government took hold? How did our engineers make it possible for laborers to work there?

**Pure Food and Meat Inspection Laws.**—What is the nature of these laws, and why was it necessary to pass them?

**Woodrow Wilson.**—Political party; high position in educational work formerly held by him; position on the tariff question; attitude toward progressive policies.

**Immigration.**—General statement concerning amount of immigration into the United States. Why is unrestricted immigration held by some to be dangerous? Why is it held by some to be good for the prosperity of the country? What is the present policy? What is the relation between immigration and the slum problem?

**Special Privileges.**—In common language, we mean special privileges to whom or what? What kind of special privileges are referred to? What do we mean by the "interests," and how are they usually involved?

**Government Ownership.**—What things do some people claim should be owned in this way?

**Tariff for Revenue Only.**—Define. What is the essential difference between this and the protective tariff? What political party has stood for this sort of tariff?

**The Income Tax.**—Purpose of the income tax law. What had to be done with the Constitution, before the law could be made? Period.

**Election of United States Senators.**—Former method; present method. What constitutional barrier stood in the way of the change in policy, and how was it overcome? What change in the political ideas of the people has brought about the change? Period of reform.

**The Franchise.**—Meaning. How has it been greatly extended in several of the states?

**The Census.**—Frequency; important things taken account of; present population of the United States (approximately).

**The Peace Movement.**—What is the object of this movement?

**Filibustering.**—Meaning when used with reference to the activities of citizens of a neutral nation, in time of war in some foreign country. Meaning when used with reference to legislation.

**The "Progressives."**—Discuss progressive policies as they apply to the following subjects: Popular government in general; nominations of candidates; accountability of elected officers to the people who elect them; right of the people to make laws for themselves. In connection with the above subjects, name the more important of the particular reforms advocated. Give the origin and object of the Progressive party. What is Roosevelt's relation to it? Period.

**Reciprocity.**—Meaning of the term, when used with reference to the tariff.

**The National Debt.**—What occasions cause nations inevitably to run into debt? In times of crisis, how do nations secure money? What are government bonds?

In a single sentence give the essential meaning of each of the following terms:

Sioux.
Abolitionists.
Plymouth Rock.
Mount Vernon.
The Argonauts (in California history).
The Lone Star State.
The Free States.
The Federal Army.
The Father of His Country.
Cheyennes.
The Father of Waters.
Apaches.
The Great Emancipator.
The Slave States.
"Old Ironsides."
The Confederates.
The Canal Zone.
The Rough Riders.
The Forty-niners.
Admission Day.
Iroquois.
Liberty Bell.
The Continental Army.

The English Parliament.
New England Colonies.
The New World.
The Mayflower.
First President of the United States.
The Cotton States.
The Emancipation Proclamation.
The Old World.
Dutch New York (the New Netherlands).
Valley Forge.
Hudson's Bay Company.
Sheridan's Ride.
Siege of Vicksburg.
Running the Blockade.
The Public Domain.
Arbitration.
The Santa Fe Trail.
Indian Reservations.
Free Trade.

In a single sentence, define each of the following terms. In the case of those marked with an asterisk (*), indicate by the appropriate number the historical period in which the thing was commonly used in this country.

Pillory.*
Totem.
Sundial.*
Stocks.*
Wampum.
Wigwam.
Pueblo.
Hour glass.*
Papoose.
Moccasins.
Flintlocks.
Tepee.
Flint and steel.
War paint.
Quill pens.*
Tomahawk.
Pipe of peace.
Sachem.
Privateers.
Greenbacks.
Homespun.*

In a single sentence explain how each of the following persons has attained a place in history, by telling what notable thing each one did, or what high or responsible position he or she held. Also indicate by the appropriate number the historical period in which each belongs:

Benjamin Harrison.
Queen Isabella.
General Phil Sheridan.
Andrew Johnson.
John Paul Jones.
Henry Hudson.
Patrick Henry.
John Adams.
Chester A. Arthur.
Robert Fulton.
James Madison.
Zachary Taylor.
Father Junipero Serra.
James K. Polk.
John Tyler.
Harriet Beecher Stowe.
Benedict Arnold.
Nathan Hale.
George III.
James Monroe.
Admiral Dewey.
Rutherford B. Hayes.
Brigham Young.
James Buchanan.
Pocahontas.
Helen Keller.
Portola.
Franklin Pierce.
Paul Revere.
Captain John Smith.
Montezuma.
Buffalo Bill.
John Quincy Adams.
Magellan.
Martha Washington.
Henry Clay.
Balboa.
Miles Standish.
Ponce de Leon.
Millard Fillmore.
General Sherman.
Martin Van Buren.
Jefferson Davis.
Francis Scott Key.
Admiral Farragut.
William Henry Harrison.
Lafayette.
Daniel Boone.
Robert E. Lee.
"Stonewall" Jackson.
Booker T. Washington.
Gifford Pinchot.
Champ Clark.
La Follette.
Peary.

## DATES.

It is essential to know what each of the following dates, or groups of dates, represents: October 12, 1492; 1606; 1620; July 4, 1776; 1776 to 1783; 1846 to 1848; September 9, 1850; 1861 to 1865; 1898.

## BIOGRAPHIES.

The student should possess at least a brief knowledge of the lives of the following men. Any test that may be given will be along the following lines: (*a*) boyhood conditions and environment; (*b*) characteristic anecdotes of boyhood; (*c*) education and conditions under which it was gained; (*d*) rise to fame; (*e*) achievements; (*f*) manhood characteristics and anecdotes; (*g*) present popular estimate.

Columbus.
Franklin.
Washington.
Andrew Jackson.
Edison.
Lincoln.
Grant.

## TERRITORIAL EXPANSION.

The student will be expected to know, in their proper order, the successive steps by which the territory of the nation expanded to its present compass. In addition to this, it would be advisable to acquire an accurate impression of the customs, characteristics, and modes of living of the people in the various stages of the westward march across the continent. For preparation in this latter phase of the subject, a selective use of parts of Roosevelt's **Winning of the West** is recommended. As a guide in the preparation, the following outline is given.

I. **The Back-Country Settlements of Colonial Time.**
   1. Life in the settlements of the Appalachian hills and valleys.
   2. The Scotch-Irish settlers: (*a*) Origin of Scotch-Irish; (*b*) Racial characteristics.

II. **The Rush Across the Appalachians.**
   1. Work of Boone and the "long hunters": (*a*) Land opened up; (*b*) Stimulus to subsequent migration.
   2. The first western settlements: (*a*) Routes and means of travel; (*b*) Character and amount of migration; (*c*) Settlements and manner of living; (*d*) Relations with the Indians; (*e*) First western states organized; (*f*) Period of formation of first western states.

III. **Acquisition of New Territory.**
   1. The Louisiana Purchase: (*a*) Date of purchase; (*b*) From whom made; (*c*) East and west boundaries; (*d*) Lewis and Clark's service.
   2. Acquirement of Florida: (*a*) How acquired and from what nation; (*b*) Date.

IV. **Expansion Westward.**
   1. Extent of western settlement, as measured by the Missouri River, in 1820.
   2. The Great American Desert: (*a*) Trip taken by Pike in 1806–7; (*b*) Early conception of the great middle West; (*c*) Inhabitants and animals; (*d*) Opening of the Santa Fe trail; (*e*) Work of trappers and hunters.
   3. Filling up of the great middle West: (*a*) River and overland travel; (*b*) Life and customs of the settlers; (*c*) Indian troubles; (*d*) Final disposition of the Indians; (*e*) New states formed.

V. **Texas, California, and the Southwest.**

1. Texas: (*a*) Immigration of American ranchers; (*b*) The Texan revolution and formation of the Lone Star Republic; (*c*) Annexation.
2. Explorations of Fremont and Kit Carson: (*a*) Land traversed.
3. Territorial results of the Mexican war: (*a*) Land acquired; (*b*) Date.

VI. **Acquisitions by Treaty.**

1. Acquirement of Oregon, in 1846: (*a*) Joint claims of England and the United States; (*b*) "Fifty-four-forty or fight"; (*c*) Settlement of the dispute.
2. The Gadsden Purchase, in 1853: (*a*) Location; (*b*) How and from whom obtained.

VII. **The Gold Rush.**

1. Discovery of Gold in California: (*a*) Date; (*b*) Effect of the news; (*c*) Routes of immigration from the East; (*d*) Experiences in crossing the plains; (*e*) Admission of California and date.
2. Discovery of gold and silver in Colorado: (*a*) Immigration following the news; (*b*) Establishment of camps and towns.
3. Western life: (*a*) Methods used in gold mining; (*b*) Mining camp life; (*c*) The pony express; (*d*) Means of travel and transportation; (*e*) Desperadoes and summary means of justice.

VIII. **Alaska.**

1. Means of acquirement: (*a*) From whom and how obtained.
2. Natural resources: (*a*) The natural resources found there; (*b*) Economic value of Alaska.
3. The rush to the mines: (*a*) Effect of the news of gold; (*b*) First means of travel to the mines; (*c*) Experiences, dangers and adventures of the prospectors.

IX. **The Hawaiian Islands.**

1. Acquisition: (*a*) Original native government; (*b*) The revolution; (*c*) Means of acquirement.
2. Present form of government.

X. **Results of the Spanish-American War.**

1. Insular acquisitions: (*a*) Islands obtained; (*b*) Forms of government established in the principal acquisitions.
2. The problem of imperialism: (*a*) Nature of the problem; (*b*) Present status.

### POLITICAL HISTORY.

As stated in the general introduction to the history outlines, no test that may be given in the political history will require a minute and specific iteration of details. A test will rather seek a statement of the larger phases, an understanding of which can only be acquired by careful preparation. It is to direct such preparation that the following outline is provided. A good book to use in the preparation would be either Bryce's **American Commonwealth,** or Fess' **Political Theory and Party Organization in the United States.** The latter would be the easier to use.

I. **Federalists and Anti-Federalists.**

1. Federalist conception of power of central government.
2. Anti-Federalist conception of states' rights and popular government.
3. Alexander Hamilton's monarchic convictions.
4. Thomas Jefferson's Republican ideals.

II. **The Constitution.**

1. The Constitutional Convention: (*a*) Place where held; (*b*) Character of men attending; (*c*) Basis of disagreement; (*d*) Nature of compromise as affecting the organization of Congress.
2. Interpretation of the Constitution: (*a*) Meaning of "strict construction"; (*b*) Meaning of "loose construction."

III. **The Old Republican Party.**

1. Jefferson's relation to it.
2. Its position regarding states' rights.

IV. **The Early Tariff Controversy.**

1. The position of the Southern states: (*a*) Economic conditions which warranted advocacy of free trade or "revenue only" systems.
2. The position of the Northern states: (*a*) Economic conditions which warranted advocacy of the protective system.

V. **The Jacksonian Democracy.**

1. Characteristics of Andrew Jackson: (*a*) Personal; (*b*) Political.
2. Birth of the Democratic party.
3. Andrew Jackson and the National bank.
4. Historic position of Democratic party on the tariff question.

VI. **The Influence of John C. Calhoun.**

1. Party affiliation.
2. Section represented by him.
3. His attitude on the states' rights doctrine: (*a*) Nullification.

VII. **The Whig Party.**

1. Daniel Webster's leadership: (*a*) His personal qualities as a leader; (*b*) His position on the states' rights controversy; (*c*) His great debate with Hayne.
2. Henry Clay's influence: (*a*) Statesmanship; (*b*) His policy of compromise.

VIII. **The Slavery Question.**

1. The controversy over slavery extension: (*a*) Attitude of Southern Democrats; (*b*) Attitude of the North; (*c*) The "popular sovereignty" doctrine.
2. The abolitionist campaign: (*a*) Doctrine of the abolitionists; (*b*) Their tactics and how they were met; (*c*) Efforts of William Lloyd Garrison, Wendell Phillips, and others.
3. The fall of the Whig party: (*a*) Its failure to meet the issues; (*b*) Its disintegration.

4. Formation of the present Republican party: (*a*) Its attitude on slavery extension; (*b*) The Lincoln-Douglas debates; (*c*) The election of Lincoln; (*d*) Secession.

IX. **Political Results of the Civil War.**

1. Constitutional amendments: (*a*) Numbers of amendments adopted; (*b*) Reasons for amendments; (*c*) Privileges granted.
2. Political confusion in the South: (*a*) Reasons for confusion; (*b*) Activities of the "Carpetbaggers"; (*c*) Political abuses and debauchery.
3. Reunion: (*a*) Administration quarrels; (*b*) Impeachment of Andrew Johnson; (*c*) Final admission of seceding states.

X. **Dominance of the Republican Party.**

1. Essential doctrines of the party: (*a*) Negro suffrage policy; (*b*) Tariff policy; (*c*) Advocacy of strong central government.
2. Victories in national elections: (*a*) Relative number of victories since Civil War; (*b*) Industrial, commercial, and territorial development concomitant with Republican supremacy.

XI. **Present Status of the Tariff Problem.**

1. Disappearance of the "infant industry" argument: (*a*) Reason.
2. Arguments for continuance of protection: (*a*) Comparative cost of labor; (*b*) Possible result of outside competition; (*c*) Relation claimed to exist between protection and general prosperity, as affecting (1) the working man, (2) the business and banking interests.
3. Arguments favoring tariff for revenue only: (*a*) Relation claimed to exist between the protective policy and the growth of trusts; (*b*) Relation claimed to exist between the protective policy and the cost of living; (*c*) Arguments claiming that the industries of the country no longer need protection; (*d*) Salutary effect imputed to foreign competition.
4. The Payne-Aldrich tariff: (*a*) Administration in which it was passed; (*b*) Its dominant characteristic; (*c*) General reasons for popular objection to it.
5. The policy of the Wilson administration.

XII. **The Trust Problem.**

1. The arguments against the trusts: (*a*) The stifling of competition and its results; (*b*) The trusts and the fixing of prices; (*c*) The trusts and the control of wages and working conditions.
2. The theory of regulation: (*a*) The idea of the inevitability of trusts; (*b*) Economies of trust production; (*c*) The idea of a federal industrial commission, and its duties.
3. The theory of suppression: (*a*) Competition as the basis of industrial society; (*b*) Incompatability of trusts and competition; (*c*) The policy of the Wilson administration.
4. The Sherman Anti-trust act: (*a*) Its purpose; (*b*) Recent applications.

XIII. **The Socialist Party.**

1. Doctrine of the class struggle.
2. Doctrine as regards manufactories, mines, railroads, and all means of production, distribution, and exchange: (*a*) Lawful means by which it seeks to attain its object.
3. Its recent growth.

XIV. **The Policies of the "Progressives."**

1. The initiative, referendum, and recall: (*a*) Explanation of each.
2. The direct primary: (*a*) Explanation.
3. The extension of the suffrage: (*a*) Nature of extension demanded.
4. The regulation of industries and the conditions of employment.
5. The Progressive conception of popular government: (*a*) Sovereignty of the people; (*b*) Attitude toward special interests.
6. Leaders in the progressive movement.

# CIVICS.

The preparation in civics is not expected to ramify through the devious labyrinths of technical government. No effort will be made to test the student's knowledge of the old school brand of civics. On the contrary, emphasis will be laid on that type of questions having a work-a-day value. What we want is a knowledge of civil government and civic problems such as would possess a use value for the serious but busy man of affairs. We fully appreciate the special need for developing high ideals along this line of the work. We believe that such ideals can only be developed by giving the civics a present-day, practical application. Knowledge of the vital facts, we believe, must precede the development of the higher motives. Students will probably be greatly assisted by the use of Bulletin No. 17, listed upon the cover pages of this monograph.

## QUESTIONS ON CIVICS.

The ability not only to answer each of the following questions in general civics and government, but to discuss the more general ones intelligently, will be considered necessary to a working knowledge of the subject. By an intelligent discussion we do not mean an academic exploration into technical or historic lore; we mean discussion solely with reference to the life-serving elements involved.

1. What dangers lie in overcrowding in large cities, as regards health and morals?
2. Tell some of the things that are being done in tenement districts in large cities, with the object of relieving the congestion and bettering the health conditions.
3. State, approximately, the amount of annual immigration into the United States.
4. Approximately, what is the total population of the United States, including dependencies, according to the 1910 census.
5. What has our government done with regard to the immigration of Chinese coolies?
6. Explain the means by which the immigration of Japanese laborers is regulated.
7. What is an alien?
8. What is the constitutional definition of a citizen?
9. What are the provisions and purpose of the homestead act?
10. Explain townships, sections, and quarter-sections.
11. What is the purpose and what are the methods of reclamation?
12. Give some examples of large government reclamation works.
13. Explain the right of eminent domain.
14. What is meant by "public service corporations"?
15. What is a franchise?

16. How has the granting of franchises often been conducive to political corruption in municipal affairs?

17. Define "natural resources."

18. Define "conservation of natural resources."

19. What are the principal duties of the Conservation Commission of California?

20. Explain the principal duties of a city board of health.

21. What importance attaches to the problem of the disposal of garbage and sewage?

22. Discuss the park and playground movement in its relation to the public health.

23. Discuss some of the principal activities and duties of the State Board of Health.

24. Define "habeas corpus."

25. Define "injunction."

26. What are the duties of United States consuls?

27. What are the duties of an ambassador to a foreign country?

28. The power to regulate interstate commerce rests with what branch of government?

29. What are the principal duties of the Interstate Commerce Commission?

30. In what branch of government do we find the board of school trustees? What are their principal duties?

31. What is the chief governing body in a city school system? The chief executive officer?

32. Explain the relation between public education and good citizenship.

33. Explain the general character of compulsory education laws, and tell why the states are justified in passing them.

34. Give the main provisions of California's compulsory education law.

35. What is the constitutional status of religions in our country?

36. What are the purpose and ideals of organized charity, and by what method does it seek to accomplish its ends?

37. By what process may the federal Constitution be amended?

38. What has amendment seventeen of the Constitution to say concerning the election of United States senators?

39. What is the duty of the Electoral College, and how is it chosen?

40. Explain how it is that the Electoral College has no function whatever, excepting the mere legal formality of registering the popular will.

41. What is done at national conventions of political parties?

42. Under the California law, what is the purpose of the direct primary system in the choice of candidates for state offices? Explain its process.

43. For what national offices are candidates chosen by direct primary in California?

44. Delegates to what conventions are chosen by direct primary in California?

45. To what extent, and by what means, do the people of California enter into the choice of candidates for President?

46. Define "machine" and "boss," and discuss the evils of machine politics.

47. How has the direct primary system militated against the system of machine politics.

48. Discuss the evils and abuses of the spoils system.

49. Tell what is meant by civil service reform, and explain the merit system.

50. What are the common features of the Australian ballot system? What fraud does it tend to prevent, and how?

51. In what branch of government do we find the board of supervisors? In a general way, state its duties.

52. What is a city charter?

53. In a general way state the duties of the city council.

54. What are some typical boards or departments found in the government of a large city?

55. Briefly explain that form of city government known as the commission form. What are the principal advantages claimed for it?

56. Of what houses is the state legislature composed?

57. What title is given the presiding officer of the lower house of the legislature?

58. What officer presides over the upper house?

59. What is the highest court in the state judiciary system?

60. What kinds or classes of cases have their first trial in the superior courts of the state?

61. In the state system, what do we call the courts intermediate between the superior courts and the highest court?

62. What kinds or classes of cases have their trial in the police courts?

63. In what branches of government do we find an attorney general? In a general way, state the duties of that official.

64. Discuss the duties of the State Board of Control.

65. Discuss the duties of the State Railroad Commission.

66. Explain the objects of California's law establishing compulsory industrial accident insurance.

67. Explain the purpose and process of the initiative.

68. Explain the purpose and process of the referendum.

69. Explain the purpose and process of the recall.

70. What is the highest of the federal system of courts?

71. What are the two lower orders of courts in the federal system called?

72. How are the judges of the federal courts chosen?

73. What determines the number of members of the House of Representatives to be chosen from each state?

74. How many United States senators are chosen from each state, and how are they chosen?

75. Describe the ordinary course of a bill, if uninterrupted, from the time of its introduction into Congress to the time of its final passage into law.

76. How may a bill become a law in spite of the President's veto?

77. What title is given the presiding officer of the House of Representatives?

78. What officer presides over the United States Senate?

79. What title is given the highest judicial officer in the land? What are his associates called?

80. In cases where the constitutionality of a federal law is protested by legal act, what final authority has the United States Supreme Court?

81. Define "impeachment."

82. On what do state and local governments usually levy taxes, in order to get revenue?

83. What does the State of California tax, in order to get the bulk of its revenue?

84. What is a poll tax?

85. What is an inheritance tax?

86. What is an income tax?

87. Tell what import duties are, and what branch of government levies them.

88. What are customs houses?

89. On what articles, made where, is the internal revenue levied?

90. What are government bonds, and under what circumstances does the government issue them?

## CONTEMPORARY MOVEMENTS AND PROBLEMS, POLITICAL, SOCIAL, AND ECONOMIC.

The following outline presents a brief summary of the pressing civic issues of the day. A knowledge of these facts is the need of every citizen who wishes to be alive to the problems that press upon us. We do not consider it advisable, however, to make such knowledge a requirement for admission to the Normal School. The student may indicate her readiness to be tested on any of the subjects in this outline. Satisfactory preparation in any or all of the subjects will give the student preferment in the assignment to classes, the preferment depending on the extent of the preparation. No tests that the student may elect to take in these subjects will exceed the substance here indicated. The following books will be of assistance in preparing this branch of the subject: Garner, **Government in the United States**; Crittenden Marriott, **How Americans Are Governed.**

1. The Peace Movement: (*a*) Objects of the Hague Conference; (*b*) Function of the Hague Tribunal; (*c*) The theory of disarmament; (*d*) The economic waste of war preparedness; (*e*) World peace as a philosophic idea.

2. Movement for government ownership: (*a*) Utilities which some people urge should be federally owned; (*b*) The policy for a national railroad in Alaska; (*c*) Utilities urged for municipal ownership; (*d*) Utili-

ties commonly owned municipally; (*e*) Some examples of extension of the municipal ownership idea.

3. Rise of the Socialist Party: (*a*) Increase of voting strength; (*b*) Policy of socialists with regard to means of production, distribution, and exchange; (*c*) The doctrine of the class struggle; (*d*) Means by which political socialists hope to secure their ends; (*e*) Meaning of the term "co-operative commonwealth."

4. The I. W. W. Movement: (*a*) Socialist doctrine; (*b*) Idea of the "one big union" and the general strike; (*c*) General extent of the movement.

5. The Single Tax Movement: (*a*) The unearned increment in land values; (*b*) What the single taxers would tax and what they would not tax; (*c*) Their argument of justification; (*d*) Some examples of a limited single tax.

6. The Immigration Problem: (*a*) Approximate annual immigration; (*b*) Concentration in cities and resulting problems; (*c*) Immigration and the standard of living; (*d*) The problem of immigrant competition with native labor; (*e*) Immigration and the sweating system; (*f*) The question of immigration and the need of labor supply; (*g*) Means advocated for limitation and regulation of immigration; (*h*) Existing immigration laws; (*i*) How Chinese immigration is regulated; (*j*) The problem of Japanese immigration.

7. The Cost of Living Problem: (*a*) Reasons for recent attention to the problem; (*b*) Relation claimed to exist between cost of living and the tariff; (*c*) The cost of living as a phase of the trust problem; (*d*) Other possible explanations.

8. Movements Toward Limitation of Child and Woman Labor: (*a*) General statement of extent of child labor; (*b*) Nature of child labor laws adopted by most of the states; (*c*) Arguments for justification of such laws; (*d*) Factors militating against effective enforcement of the laws; (*e*) Character of laws passed to regulate hours of labor for women; (*f*) Arguments urged in justification of such laws; (*g*) The question of regulating women's hours of labor in its relation to the right of free contract; (*h*) Woman labor legislation in California; (*i*) The Industrial Welfare Commission of California.

9. The Conservation Movement: (*a*) Results of investigations into the supply of natural resources; (*b*) Natural resources most vitally concerned; (*c*) Conservation and the "vested interests"; (*d*) Conservation laws and regulations advocated; (*e*) Nature of conflict between state and national authority; (*f*) Conservation legislation in California; (*g*) The proposed government railroad in Alaska as a conservation measure; (*h*) Arguments urged in justification of conservation.

10. The Prison Reform Movement: (*a*) The old idea of imprisonment as punitive solely; (*b*) The newer idea of treating criminality as a disease; (*c*) The theory of the indeterminate sentence; (*d*) Reformatories for first offenders; (*e*) The agitation against capital punishment.

11. Tendency Toward State Regulation of Conditions of Employment: (*a*) As affecting sanitary conditions in factories; (*b*) As regards compulsory compensation for injuries and deaths; (*c*) As regards minimum wages; (*d*) As instanced by efforts looking to conciliation and arbitration by the government; (*e*) Conception of industry as quasi-public in character; (*f*) California's industrial insurance law.

12. The Movement for Election Reform: (*a*) Nature and purpose of corrupt practices acts; (*b*) Spread of the direct primary idea; (*c*) The direct primary as a cure for certain evils of the caucus and convention systems; (*d*) Explanation of the direct primary as applied to local, state, and certain national offices in California.

13. The Movement for Direct Legislation: (*a*) Significance; (*b*) General extent; (*c*) Explanation of initiative and referendum; (*d*) The recall; (*e*) The movement in relation to "special interests" and "special privileges"; (*f*) Direct legislation in California.

14. Movement to Make Education More Serviceable to the Mass of the People: (*a*) Comparative smallness of numbers seeking higher education; (*b*) Commercial and industrial life as the destiny of the vast majority; (*c*) Kinds of practical courses being introduced; (*d*) Education in its relation to democracy.

15. Concentration of Forces of Labor and Capital: (*a*) Increasing power of labor through organization; (*b*) Collective bargaining; (*c*) Growing strength of radical labor programs, as instanced by industrial unionism, etc.; (*d*) Concentration of capital, and consequent increase of power; (*e*) Growth and significance of employers' organizations.

16. The Trust Problem: (*a*) Provision of the Anti-Trust Act with regard to combinations in restraint of trade; (*b*) Difficulty of interpretation; (*c*) Insertion by Supreme Court of the word "unreasonable"; (*d*) Some Supreme Court "dissolutions"; (*e*) The problem of stock watering and over-capitalization, especially with reference to the effect on prices; (*f*) Physical valuation, and the question of fixing prices according to such; (*g*) Comparison of the policy of dissolution with the policy of regulation.

17. The Woman Suffrage Movement: (*a*) Present extent of woman suffrage in the United States; (*b*) Political and social significance of the movement.

18. Panama Canal Problems: (*a*) The nationalistic conception of the canal; (*b*) The conception of the canal as an international property; (*c*) The question of fortification in its relation to the peace movement; (*d*) The question of rates in its relation to international commercial competition; (*e*) Problems arising from prospective immigration at Pacific ports.

## SECTION II.

# LITERATURE AND SCIENCE.

## GENERAL HISTORY.

The chief things to be sought by historical studies is a broad general intelligence concerning those events, movements, persons, policies and ideals which have become generally recognized in the development of civilization. The chief thing to be avoided in the student is a perfunctory and undigested cramming of disjointed facts. One chief purpose of any test or examination will be to distinguish between the digested, thoughtful preparation and hasty fact cramming. No value whatever, so far as possible, will be given to the latter. Students are therefore earnestly urged to make their study substantial and to stimulate their hearts as well as their intellects. The reading of poetry or fiction concerned with any period or event will be valuable to give coloring. For example in preparing upon Buddhism do not try to amass the encyclopedic facts concerning Buddha's life, but read sympathetically (if you have not already done so) Edwin Arnold's Light of Asia and then your knowledge will have substance, weight and feeling. We do not want a collection of items of dry fact concerning Napoleon but a story of the little Corsican boy with a fierce, unyielding ambition. We want you to feel the intensity of the dramatic situation when he is selected to defend Paris from the mob; to see him crossing the Alps midst snow and ice, for "beyond lies Italy"; to stand with him at the Bridge of Lodi; to feel the tyranny of his iron hand upon the nations of Europe, the cruelty to individuals used to make France an empire; the pathos of the story of Josephine; the fearful retreat from Moscow; the bitterness of Elba; the triumph of the return when his old soldiers, sent against him, raised the welcoming shout and joined his cause; the havoc of Waterloo (read the poem "Waterloo"); then the justice, the pathos and the quiet of St. Helena, concluding with a reading of Robert Ingersoll's oration at Napoleon's tomb.

I. **Stories of Nations and Peoples.**—Students should know the history of each well known nation or people in a connected, sequential form. We do not mean by "history" merely a bare series of events but as an interesting story of the heroic and dramatic features which have become common knowledge apart from school knowledge, and which are remembered because in current use. This history of nearly all civilized nations may be reduced to a form of pen picture containing the customs, social and civic ideals, and the pulsating feelings of humanity; stories of national heroes who have stood for some great principle; representative features of religions or philosophic beliefs. We need to avoid the use of dried or abstract statements which omit the juices of life and to have in memory anecdotes or incidents illustrating each feature. For example, it is not sufficient, in the story of Greece, merely to repeat the abstraction that the Spartans trained their boys to be courageous warriors, but the mind should be stored by emotional and dramatic incidents illustrating this feature—the admonition of the mothers in bidding their sons before a battle "Come back bearing your shields, or upon them"; the exposure of weak infants upon the mountains to the wild beasts, the story of the heroes of Thermopylæ and the monument to their memory bearing the inscription "Go tell the Spartans, ye who pass us by, that obedient to her laws here we lie." Throughout, the items of each topic are expected to be prepared in this way and not by the use of some dry, dead, abstract statements.

1. **Egypt.** Antiquity of civilization; theories of purposes, means of erecting, and uses of the pyramids and sphinx; purposes of preparing mummies and religious reasons therefor; Isis; Osiris; interesting features laid bare by recent excavations showing the customs of the people; something about the Pharaohs, Ptolemies, the periods of national greatness. and something of the successive periods of tributary relation to other nations down to the present.

2. **Greece.** The legendary period and the spirit and ideals dominant, outline of the dramatic events of the Trojan war and ability to fill in famous stories if called upon to do so; features of Spartan education with ability to give the story of Leonidas at Thermopylæ; early Athenian life; sacrifice of the last king of Athens; explanation of rise of Athens to power; evidences of art, sculpture, drama and philosophy in the age of Pericles; system, effects and pathos of the slave system; the theater; the Olympic games; reduction of Greece to a Roman province and subsequent conditions until modern times; famous ruins now existing.

3. **Rome.** Some legendary anecdotes of Romulus and Remus; Horatius' defense of the bridge, the Tarquins and the basis of the Roman hatred to the name king; outline of the ancient Roman democracy; the plebians and patricians; Julius Cæsar, his dramatic career; show the acquisition and extent of Roman Empire and ending with a dramatic presentation of the political issue of Cæsar, Brutus and Antony as presented by Shakespeare. Domestic and social customs of the Roman people under the emperors; the gladiatorial combats; the arena and wild beasts; Nero and Marcus Aurelius; the destruction of Pompeii, and the wonders of recent excavations; cruelties to early Christians; the causes of the disintegration of the empire illustrated by concrete illustrations and anecdotes. The formation of the European nations from the wreckage of the Roman empire.

4. **England.** The original Britons; the Gaelic tribes and their present descendants in Scotland, Ireland and Wales; the Druids; the Roman influences; the coming of the Angles and Saxons; Alfred the Great; the coming of William the Conqueror and the battle of Hastings; the unifying of peoples, language and customs; story of the crusades; story of Magna Charta; the Barons and King John; Henry VIII; execution of his wives; Mary Queen of Scots; Elizabeth and her court; Shakespeare; any later dramatic incidents or history; Cromwell and execution of Charles I; George III and the American Colonies; Victoria and present extent of England's rule.

5. **France.** The Gauls under Roman dominion after Cæsar; Charlemagne; early feudal life and customs; Joan of Arc; Richelieu; social customs and extravagances of the court and the poverty of the people prior to the revolution; fall of the Bastile; execution of Louis XVI and Marie Antoinette; heroes of the revolution; hasty trials, wholesale executions, and Robespierre; story of life of Napoleon Bonaparte, his rise to power, conquests; Moscow, Elba, Waterloo, and St. Helena; Franco-Prussian war and establishment of the Republic.

6. **Germany.** Under the Romans; formation of the principalities after the fall of Rome; Barbarossa; life in feudal times; merging of principalities into Empire; Frederick the Great; Bismarck; Emperor William; German socialism; the Reichstag.

7. **Switzerland.** The legendary William Tell and spirit of civic freedom; establishment of first modern republic in Europe.

8. **Russia.** Early history as home of the northern tribes during Roman supremacy; Peter the Great; Catharine II; type of absolute monarchy; the nihilists; assassinations; poverty; suppression of peasant class; Siberian and prison system; treatment of the Jews; Japanese war and present status of people, customs, education.

9. **Spain.** A Roman province; after the fall; the Moors; Isabella and Ferdinand; customs of people; modern monarchy; present political unrest.

10. **China.** Antiquity of its civilization in social and governmental forms; Confucius, the main principle and some illustrations of his philosophy; his influence upon the people; early inventions; building of great wall; the dynasty of the Manchus; social customs of people; education, and its relation to government; types and severity of ancient punishment; resistance to western civilization; establishment of Republic; present status.

11. **Japan.** Its marvelous burst of civilization in one generation; items and illustrations of this feature in commerce, military power, and education; art; Russian and Japanese war; Buddhism and Shintoism; devotion to the Mikado; customs, life and art of the people.

12. **India.** Antiquity of religious civilization; read Light of Asia and construct story of Buddha, his common doctrines; Nirvana; Brahma and Brahmanism; Vishnu; caste system illustrated by illuminating anecdotes; Karma; read Kipling's Kim; worship of idols; transmigration of souls; abhorrence of meat as diet; burning of widows; casting infants into the sacred river; conquest by England; English system of government and repression of some racial customs.

13. **Story of the Hebrews.** Be familiar with stories of Abraham and Isaac; Jacob and Esau; Joseph; Egyptian captivity; Moses, Job, Ruth, Esther, Mordecai, Saul; David; Jonathan; Solomon; the prophets; abhorrence of idol worship; the captivity; under the Romans; scattered throughout the world; mediæval persecutions; wonderful idealism; persistence of the purity of the race; modern attitudes of other races in England, Spain, Germany, Russia, and America.

14. **Mohammedanism.** Story of founder; conversion by the sword; the Koran; the spread of the religion; the Moors; attitude toward art;

social customs; the mosque; Mecca, the pilgrimages; praying with face to East; present extent of the religion.

15. **The Norsemen.** Countries originally occupied by Norsemen; modes of life; raids upon other peoples; the Vikings; discovery of America; Asgard; Odin; Thor and his hammer; Loki and stories of him; the dwarfs; the ice-giants; Balder, significance and death; Valhalla; Nibelungen Lied.

16. **North and South America.** Chief North American tribes; customs in peace and war; read any of Cooper's novels for coloring; the Esquimaux of the north; the peaceful tribes of the Pacific; the Aztecs of Mexico (read Lew Wallace's Fair God for color and dip into Prescott's Conquest of Mexico); the cliff dwellers; the Incas of Peru (see Prescott); the wild tribes of the Amazon; the fierce Patagonians; the rise of the Spanish-American republics of Central and South America.

II. **Races.**—The races of peoples to whom the following terms are applied, chief geographical distribution, nations composed of them, past or present, and any events of history made important by them as a class: Aryan, Semitic, Sons of Ham, Celtic, Norse, Malay, Norman, Mongols, Tartars, Goths, Vandals, Basques, Moors, Angles, Saxons, Latin races, Gallic races.

III. **Forms of Government.**—Essential features of the following forms or theories of government with notable and characteristic illustrations in history, past and present, or places of prevalence:

Democracy, Absolute monarchy, Constitutional monarchy, Socialism, Nihilism, Anarchy, Republic, Tyranny, Imperialism, Feudalism, Serfdom, Oligarchy.

IV. **Famous Names.**—The essential or characteristic feature, event, office, accomplishment or principle which has made each of the following famous. You should also be able in the case of most of these to give the century in which each lived. In order to understand these terms there must be considerable reading upon each to obtain the setting and coloring. If you have not already read materials presenting these characteristics fully, and with emotional coloring, it will be profitable for you to do so now.

Pasteur.
James Watt.
Savonarola.
Phidias.
Luther.
Marco Polo.
Sir Isaac Newton.
Gutenberg.
William the Conqueror.
Constantine.
Demosthenes.
Rousseau.
Xerxes.
Euclid.

Hannibal.
Frederick the Great.
Harvey.
Karl Marx.
Lister.
Robespierre.
Solon.
Garibaldi.
Captain Cook.
Marie Antoinette.
Voltaire.
Father Serra.
Darwin.
Peter the Great.

Aristotle.
Horace.
Copernicus.
Louis XIV.
Bruce.
Richelieu.
Louis Napoleon.
Lycurgus.
William of Orange.
Herodotus.
Zoroaster.
King John of England.
Froebel.
Draco.

Plato.
Calvin.
Sophocles.
St. Augustine.
Joan of Arc.
Wellington.
Emperor Augustus.
Cicero.
Socrates.
Gladstone.
Justinian.
Galileo.
Robin Hood.
Richard Coeur de Leon.
Peter the Hermit.

**Familiar Historical Phrases and Terms.** The feature of significance and historical origin of the following phrases or terms:

Fabian policy.
Stoic.
Nirvana.
Epicurean.
Spartan.
Crossing the Rubicon.
Back from Elba.
The Forum.
Midas.
Ostracism.
Juggernaut.
Iconoclast.
Mammon.
Patrician.
Plebian.
Pharisee.
Philistines.
Met his Waterloo.
Machiavellian.
Saga.
Arcadian.
Sphinx-like.
Draconian.
Nestor.
Shintoism.
The Vikings.
Greek Church.
Divine right of kings.
Cavaliers.
The Dark Ages.
The Middle Ages.
Elizabethan.
Western Empire.
Victorian.
Jesuits.
The Renaissance.
The Huguenots.
Holy Roman Empire.
The Medici.
The Reformation.
The Exodus.
The Captivity.
Age of Pericles.
Athenian democracy.
A Roman Consul.
The Ptolemies.
The twelve tribes.
The Mosaic law.
Papyrus.
The Inquisition.
The Reign of Terror.
Alexandrian library.
The Crusades.
Crimean War.
The Eastern Question.
The Lion of Lucerne.
Temporal power.
Home rule for Ireland.
Syndicalism.
The States General.
The Eternal City.
The City of Seven Hills.
The Parthenon.
The Louvre.
The Bastile.
Fall of the Bastile.
Whigs and Tories.
Cathay.
Hohenzollern.
Granada.
The Commune.
Islam.
The Talmud.
The Spanish Armada.
Marathon.
Trafalgar.
Norman conquest.
Doric and Ionic.
Tribune of the People.
The Black Death.
The Age of chivalry.
Black Hole of Calcutta.

Be able to tell which of the inventions, conveniences, foods and indulgences, listed below, were in use during the lives of each of the following persons: Pericles, Emperor Augustus Cæsar, Charlemagne, Shakespeare, Washington, Lincoln. List also those not in use until after Lincoln: Telegraph, water piped into dwellings, steel pens, lead pencils, suction pumps, guns, microscopes, kerosene lamps, use of anæsthetics in surgery, banks, tomatoes, elevators, tea, coffee, tobacco, wine, cooking stove, furnace heat for dwellings, piano, violin, harp, typewriter, canned foods, gramophone, sewing machine, sugar, rubber clothing, government post office, automobiles, bathtubs with hot running water, telephone, compass, printed books, daily newspaper, electric light, telescope, photographs, steam engine, railroads, steamboats, gasoline engines, thermometer, radium, moving pictures, silks, theaters, potatoes, turkey, chocolate candy, electric cars, watches, clocks, glass windows, potatoes.

## LITERATURE.

The object to be reached by this outline in literature is a wide acquaintance and appreciation of the various fields, ideals, and phases of human living presented by literature rather than any intensive study according to the technical code which schooling has traditionally established. Students may be assisted by the use of Bulletins Nos. 5 and 10, by Allison Ware, listed upon the cover pages of this monograph.

There will be two parts to the literature tests. Upon admission each student will be requested to submit a preliminary statement of books read upon which she feels qualified to pass an examination. If this list indicates that the student has had a reading experience of adequate general culture this showing will be sufficient for the time. At some subsequent date, after entrance to the Normal School, a set of questions, special to each student's reading, will be given at a test for assignment as a class teacher. The preliminary test should show a reading experience representing roughly about seventy per cent of what these outlines suggest.

I. **List of Authors.**—The following list represents authors whose works have become so generally read that no intelligent person can safely be without personal familiarity with their messages or styles of presentation. All students should see to it that they have personally read some typical works by these authors and feel qualified to pass a test showing an intelligent comprehension. In the list of significant books following, works by these authors will be found.

For the preliminary statement of reading students should list all books by these authors they have read and upon which they are willing to be tested. The test will be upon typical characteristics of the author or upon some characters, portions of plot, or problem in the books the student has read. The test will not be such as to require accurate memory of unimportant characters, details of plot or other features which could not be expected of a person who has not read the book in question for some time. So it is therefore not necessary to reread books in preparation for test:

(*a*) Barrie, Clemens (Mark Twain), Dickens, Burns, Byron, Browning (Robert), Churchill, Eliot, Hugo, Homer, Kipling, Ibsen, Hawthorne, Irving, Poe, Lowell, Longfellow, Maeterlinck, Stevenson, Tolstoy, Van Dyke, Shakespeare, Tennyson, Wordsworth.

(*b*) Make a list of books which you have read, written by authors who in your judgment should be included in this list.

II. **List of Books.**—This list has been selected to include the following types:

1. Books of children's literature and stories, either to be read by children or told to them, with which parents, aunts, uncles, sisters and teachers should ever be familiar.

(*a*) Mother Goose; **Æsop,** Fables; **Andersen,** Fairy Stories; **Burnett,** Sarah Crew; **Jamison,** Lady Jane, Toinette's Philip; **Grimm,** Fairy

Stories; **Barrie,** Peter Pan (adapted); **Baum,** Oz Books; **Carroll,** Alice in Wonderland; **Kipling,** Just So Stories, Jungle Books; **Hawthorne,** Tanglewood Tales, Wonder Book, Twice Told Tales; **De Foe,** Robinson Crusoe; **Swift,** Gulliver's Travels; **Browning,** Pied Piper of Hamelin; **Muir,** Stickeen; **Ramé,** Dog of Flanders; **Sewell,** Black Beauty; **Longfellow,** Hiawatha; **Ruskin,** King of the Golden River; **Alcott,** Little Men, Little Women; **G. A. Henty,** any of his books; **Harris,** Uncle Remus Stories.

(*b*) Make a list of books belonging to this type, which you have read but which are not included upon this list.

2. Books about children which should be read by grown-ups because they present certain essential phases of child nature and tend to make one sympathetically *en rapport* with children.

(*a*) **Barrie,** Sentimental Tommy; **Burnett,** The Dawn of a To-morrow, The Secret Garden, Little Lord Fauntleroy; **Eliot,** Mill on the Floss; **Dickens,** Old Curiosity Shop; **Fox,** Little Shepherd of Kingdom Come; **Field,** Poems; **Harte,** M'liss; **Hughes,** Tom Brown's School Days; **Kipling,** Kim; **Kelly,** Little Citizens; **Longfellow,** Children's Hour; **Martin,** Emmy Lou; **Porter, Mrs. E. H.,** Pollyana; **Clemens,** Prince and Pauper, Tom Sawyer, Huckleberry Finn; **Stevenson,** Child's Garden of Verses.

(*b*) Make a list of books belonging to this type which you have read but which are not included upon this list.

3. Books which present healthy, stimulating ideals of human living and offer a field of "good society" for any one to enter. Also books which have become so widely read that they have become classic and with which, for reasons of general intelligence, no one can afford not to be familiar. It is of course not expected that students should have read every book upon this list but it is a list to keep and as opportunity offers make reading of it as nearly complete as possible. During the Normal School course students will be called upon to report upon familiar reading. Many standard writers and books of value have been omitted from this list because they carry no particular message, are heavy reading for young people or for other minor reasons. With few possible exceptions the list as given will prove delightful and profitable reading to students.

If you have read books by the same author which are not listed enter them upon the list.

(*a*) **Mary Raymond Shipman Andrews,** A Perfect Tribute; **Mary Austin,** Indian Myths; **Jane Addams,** Twenty Years at Hull House; **Edwin Arnold,** Light of Asia; **Bible Idyls** of Abraham and Isaac, Ruth, Esther, Job, Joseph, David and Jonathan, Saul, Absalom; **Robert Burns,** Cotter's Saturday Night, Tam o' Shanter, Bannockburn; **Robert Browning,** My Last Duchess, The Statue and the Bust, Andrea del Sarto, Prospice, Epilogue; **Blackmore,** Lorna Doone; **Samuel Clemens (Mark Twain),** Joan of Arc, Innocents Abroad; **James Fenimore Cooper,** Any one of his novels; **Winston Churchill,** Coniston, Mr. Crewe's Career, Richard Carvel, The Crossing; **Samuel T. Coleridge,** The Ancient Mariner; **George Cable,** Old Creole Days, or any one of his Southern novels; **Charles Dickens,** David Copperfield, Pickwick Papers, Tale of Two Cities; **Thomas Dixon,** The Clansmen; **A. Conan Doyle,** Sherlock Holmes; **Edward Eggleston,** The Hoosier Schoolmaster; **Ralph Waldo Emerson,** Any one of his essays; **John Fox, Jr.,** Little Shepherd of Kingdom Come; **Paul Leicester Ford,** Janice Meredith, The Honorable Peter Stirling; **H. S. Harrison,** Queed; **Nathaniel Hawthorne,** The Scarlet Letter; **Homer,** The Iliad or Odyssey; **Victor Hugo,** Les Miserables; **Bret Harte,** His Short Stories of Pioneer Life, Dickens in Camp, and other poems; **Ludovic Halevy,** Abbé Constantine; **Edward Everett Hale,** Man Without a Country; **Elbert Hubbard,** The Message to Garcia; **Henrik Ibsen,** The Doll's House; **Washington Irving,** Rip Van Winkle; **Helen Hunt Jackson,** Ramona; **Leigh Hunt,** Abou Ben Adhem; **Mary Johnston,** To Have and To Hold, Lewis Rand; **Rudyard Kipling,** The Recessional and other poems, Plain Tales from the Hills, Soldiers Three; **Charles Rann Kennedy,** The Servant in the House, **Helen Keller,** The Story of My Life, and some of her essays; **Omar Khayyam,** The Rubaiyat; **Henry Longfellow,** Miles Standish, Tales of a Wayside Inn, and shorter poems; **Bulwer-Lytton,** Last Days of Pompeii; **James Russell Lowell,** Vision of Sir Launfal; **Jack London,** The Call of the Wild, The Love of Life, and other stories; **Maurice Maeterlinck,** The Blue Bird; **Thomas Moore,** The Fire Worshipers in Lalla Rookh; **Ian Maclaren,** Beside the Bonnie Brier Bush; **Lord Macaulay,** Horatius at the Bridge; **Joaquin Miller,** Columbus, and other poems; **Kathleen Norris,** Mother; **Gene Stratton Porter,** The Harvester, Laddie, or Freckles; **Gilbert Parker,** any one of his novels; **Thomas Nelson Page,** Red Rock, or Short Stories; **Edgar Allen Poe,** The Raven and other poems, The Gold Bug and other stories; **Jacob Riis,** The Making of an American; **Alice Hegan Rice,** Mrs. Wiggs of the Cabbage Patch; **James Whitcomb Riley,** Poems; **Dante Gabriel Rossetti,** The Blessed Damosel; **Sir Walter Scott,** any one of his novels not used as English at school; **William Shakespeare,** Hamlet, Lear, Macbeth, Midsummer Night's Dream; **Harriet Beecher Stowe,** Uncle Tom's Cabin; **Robert Louis Stevenson,** Treasure Island and any other novel, Epitaph; **Frank R. Stockton,** The Lady or the Tiger, Rudder Grange; **Henrik Sienkiewicz,** Quo Vadis; **Alfred Tennyson,** Idylls of the King, In Memoriam, Locksley Hall, Crossing the Bar, Enoch Arden; **Ernest Seton-Thompson,** Wild Animals I Have Known; **William M. Thackeray,** Vanity Fair; **Ivan Turgenev,** any one of his novels; **Maurice Thompson,** Alice of Old Vincennes; **Count Tolstoy,** any one of his novels; **Henry Van Dyke,** The Other Wise Man, The Ruling Passion and other stories; **Lew Wallace,** Ben Hur, The Fair God; **Harold Bell Wright,** The Winning of Barbara Worth, Shepherd of the Hills; **Booker T. Washington,** Up From Slavery; **Kate Douglas Wiggin (Riggs),** Rebecca of Sunnybrook Farm; **Stewart Edward White,** any of his novels; **Mary Waller,** The Woodcarver of 'Lympus; **William Wordsworth,** Ode to Immortality, We Are Seven, Tintern Abbey; **Walt Whitman,** O Captain, My Captain; **J. G. Whittier,** Songs of Labor, The Barefoot Boy, Snowbound; **Israel Zangwill,** Children of the Ghetto.

(*b*) Make a list of other books which you have read and which in your judgment should be included in this type.

III. **List of Problems.**—A number of literary masterpieces have been written so as to present some of the great problems of human living. A few are here listed. Students should have read all of these books and worked through these problems with intelligent comprehension. In the preliminary test the student will write the numbers of the problems she is prepared to discuss. At some later time the test will be given from some one or more of the topics named.

1. (*a*) Was it right for Gautama (Light of Asia) to abandon his duties as ruler of a people in the existing world in order to win Nirvana? 2. Discuss the moral issue involved in the political conditions of Churchill's Coniston, or Mr. Crewe's Career. 3. What is wrong in our social or educational conditions that it is rare we find men capable of carrying messages to Garcia (Hubbard)? 4. State in plain prose the lesson of Kipling's Recessional. 5. Sketch briefly the view of life held by the Rubaiyat and then, if you can, make an efficient, optimistic answer to it. 6. State in plain prose your comprehension of the lesson of Lowell's Sir Launfal. 7. If you find any analogies in human life to the "Call of the Wild," state them. 8. Write in prose a plain statement of the lesson of Maeterlinck's Blue Bird. 9. What analogies, in the fields of civic or moral courage, can you offer to Macauley's Horatius? 10. After reading The Making of an American, by Jacob Riis, does it seem that Americans are born or made? If made, what are the forces which make Americanism? Describe the final product and its elements; *i. e.*, what are the distinguishing desirable qualities of an American? 11. What is the weakness of Hamlet? 12. Compare Hamlet and Horatius. 13. Compare the negro slave of Mrs. Stowe, the negro slave of Thomas Nelson Page, and the negro slave as represented by Booker T. Washington and state your reflections. 14. From your knowledge of human nature, and remembering the Call of the Wild (London), was it the Lady or the Tiger? 15. Why is Becky Sharp of Vanity Fair more living and realistic than King Arthur of Tennyson? 16. Contrast Lewis Rand with Lincoln as to (*a*) early ambitions in face of serious difficulties, (*b*) effect of ancestral conditions upon later manhood and civic morals. Were they the products merely of conditions or was each what he became because of inherent and intrinsic qualities?

IV. **Hero Literature.**—Students should be equipped with the materials for making stories of dramatic human interest from the following: Alfred the Great, William Tell, Arnold of Winkelried, Bruce and Wallace of Scotland, Joan of Arc, The Spanish Armada, The Crusades and Richard the Lion Hearted, King John and Magna Charta, Crimea and the Charge of the Light Brigade.

V. **Literature of Mythology.**—Literature is studded with the names of, and allusions to, the ancient Greek mythology and many of the terms have come to have a modern significance. Many of the situations have been taken as types of certain human ideals and they offer in this way an inexhaustible body of reference material and handy analogies. The following names, stories and references represent rather a minimum of this field of knowledge and human feeling in current use. Students should be familiar with all of them. They should not be crammed but read under such conditions that the stories reach the soul. They are not as a rule given in a form complete enough in the usual compendiums of myths such as Gayley's. Many have been made famous by complete poems of modern poets.

The brief outlines are as guides to the student's reading to show what ground should be covered. You should list the items which you have read and upon which you are competent to be tested. Later a test will be given to determine chiefly whether your reading has been thorough and done in a feeling way or is merely a hasty cram of unemotional names and facts.

(*a*) You should be familiar with the following classic stories not as mere series of events but in a wholesome, comprehensive way to preserve and emphasize the artistic and emotional touches:

Judgment of Paris; The Capture of Helen; Death of Hector; Fall of Troy; Jason and Golden Fleece; Cupid and Psyche; Echo and Narcissus; Perseus and Gorgon's Head; The Minotaur; Hero and Leander; Midas; Niobe; Orpheus and Eurydice; Pandora's Box; Prometheus (see Shelley's poem); Alcestis and Admetus (read Browning's Transcript from Euripides); Adventures of Ulysses with Circe; Among the Lotus Eaters; With the Sirens; With Charydis and Scylla; return home and Penelope's faithfulness; Aurora and Tithonus; Ceres and Proserpina (read Swinburne's poem); Sacrifice of Iphigenia; Protesilaus (see Wordsworth's Laodamia); Romulus and Remus; The Dragon's Teeth; Hercules and his well known labors; Hyacinthus; Description of Hades; how entered by dead; the grim ferryman; the Styx; divisions of Underworld; punishment of Ixion; Tantalus, Sisyphus (see Æneid and Story of Proserpina); Damon and Pythias; Damocles.

(*b*) Be familiar with the allegorical or figurative meaning and the story or characteristic association with the following: Adonis; Elysium; Graces; Nemesis; Waters of Lethe; Lotus; Morpheus; The Muses; Palladium; Tantalus; Terpsichore.

(*c*) The student should be familiar with the following personalities to the extent indicated: **Achilles**; invulnerability, characteristics; duel with Hector. **Æneas**; reason for wandering; chief well known adventures; descent into Hades; legendary relationship to the Roman race. **Apollo**; physical beauty, significance; chief stories with which he is connected. **Aphrodite** other names; chief famous stories in which she appears. **Diana**; goddess of what? **Juno**; who she was; chief famous stories in which she prominently appears. **Jupiter**; other names; position in the pantheon of gods; why called the Thunderer; appropriateness of the expression "wrath of Jove." **Minerva**; birth; goddess of what. **Pan**; appearance; god of what; inventor of what; meaning of "Pan is dead." **Venus** (see Aphrodite). **Vulcan**; god of what; how represented.

(*d*) In a single sentence give the characteristic, office, event or significant feature of the following: Æsculapius; Æneid; Amazons; Atlas, Andromeda; Bacchus; Bacchanalia; Charon; Centaur; Cerberus; Cyclops; Dryad; Eleusinian Mysteries; Eumenides; Furies; Medusa; Harpies; Hymen; Iliad; Iris; Janus; Laocoon; Lares and Penates; Minotaur; Mercury; Mars; Nestor; Neptune; Odyssey; Mount Olympus; Omens; Delphic Oracle; Priam; Pluto; Parnassus; Pegasus; Phoebus; Styx; Sphinx; Satyr; Titans; Vestal Virgins; Virgil.

# THE SCIENCES.

We are seeking, by these outlines, to arrive at simple explanations of the common wonders of nature and human invention with which life is now surrounded. Our goal is to rob these wonders of the superstition and misapprehension with which ignorance naturally imbues them. Yet school science has not yet accomplished this modest goal. School education, in the attempt to explain one principle, has offered such a snarl of entangled other principles and has used such a technical terminology of expression that the result is too often an unintelligible blur. The student is unable to see the forest on account of the number of trees, young saplings and the underbrush.

Students who seek self instruction from texts and reference books will find it difficult, it is to be frankly admitted, to discover explanations that will furnish this knowledge in the simple form we are seeking. It is unfortunate that text writers upon scientific subjects have been unwilling or unable to explain familiar facts in untechnical language and not involved with unessential details. The most wonderful thing about a telegraph system or a gramophone, however astonishing their effects, is the extreme simplicity of their principles as compared with the usual text descriptions of them. There is an unhappy notion of scientific snobbery which rather maintains that it is "unscientific" to use language which can be understood. This notion is a relative to that of doctors who write their prescriptions in Latin when English would be more satisfactory both to the patients and the druggist, and in the long run more conducive to health. Students are therefore advised, in all subjects possible, to request their teachers to give them assistance in reducing the usual explanations, involved as they are with useless detail of apparatus, to simple statements of principle in terms of ready comprehension.

The important thing for students is to secure this broad and simple comprehension of the laws of nature as applied natural phenomena, and as used in human inventions. This knowledge constitutes human knowledge and a basis of intelligence. If any of these students later takes up as a special pursuit or vocation some one of these fields, there is then the proper place and time for learning all the details of principles and machinery. As students in the "common" school they seek that knowledge which is without regard to vocation or pursuit but which constitutes the current coins of a general intelligence.

## PHYSICAL SCIENCE.

1. Explanation of weight as the measure of the force of gravity; illustrate by variations in the weight of the same object at the equatorial sea level and other points upon the earth; at points below the sea level and above sea level. If a hole should be bored through the earth passing through the center, and a cannon ball dropped into it, explain what, as a theoretic problem of weight, would become of the cannon ball; explain

weight of objects upon the moon and upon other planets and how weight upon these bodies would be determined, and how they would vary: explain what is meant by "down" and "up," whether the people at our antipodes are ever "down" or "up" from us, and where it is that we finally get completely "down."

2. Explanation of the weight of air, illustrating by some simple experiment to show air has weight; the pounds pressure per square inch; why liquids tend to find "their level;" explain, upon this principle of atmospheric weight, the siphon, the barometer and the suction pump; why a suction pump will not operate for a greater distance than about thirty-two feet; explanation of the principle of the barometer in measuring altitudes above sea level, and in foretelling storms.

3. Explanation of sound by the principle of wave transmission; upon this principle explain echoes, the phonograph and the non-electric telephone; velocity of sound in feet per second.

4. Explanation of the varying number of vibrations as the basis of musical notes and scale; explanation of the fact that certain notes produced by the human voice, or by another instrument, will cause by sympathetic vibration the same notes upon piano or harp.

5. Explanation of the fact, in terms of the molecular theory, that heat usually expands objects in size and that cold contracts them; explanation of the notable exception to this law, in the case of freezing water, and picture what would happen to the earth if this exception did not operate; upon this principle explain the principle of the thermometer.

6. Explanation that different substances expand in unequal degrees under the same amount of heat; upon this principle explain the thermostat used in incubators and in most modern schoolrooms to regulate the temperature automatically.

7. Explanation of the effect of heat and cold in increasing and decreasing humidity of the atmosphere; explanation, upon this principle, of cloud formation, dew, rainfall, and the saltiness of sea water.

8. Explanation of boiling points, variability in different substances and modification of the principle under influence of pressure; upon this principle explain distillation, illustrating by the distillation of alcohol and alcoholic liquors, of gasoline and other common products of petroleum.

9. Explanation, upon the principle of vapor expansion by heat and condensation by cold, the operation of the steam engine without going farther into the mechanical construction than necessary; explanation of the operation of the gas engine, now so generally used especially in automobiles.

10. Statement of theory of the transmission of light by waves of ether; velocity of light per second; calculate the time for a ray of light to pass from sun to earth (93,000,000 miles); time for light to pass from the nearest star to earth (26,000,000,000,000 miles); explain why we hear the sound of a locomotive whistle after we see the steam rise, and why we see lightning before we hear the thunder.

11. Explain formation of an image, using a pinball and cardboard; explain upon same principle the formation of image upon plate in camera;

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explain the chemically sensitized plate and how the image is preserved and developed without going into any details except the simple facts necessary for the explanation of the principle.

12. Explain why a straight stick extending into water seems to be bent; explain the refraction of light in passing through a glass prism and the separation of the colors; upon this principle explain the rainbow; also explain in terms of same principle, the spectroscope; uses of spectroscope in determining the presence of substances in an incandescent state; how we know that heavenly bodies contain the same elements as those found upon the earth.

13. Explain the telescope and the microscope in terms so that a child may comprehend the principle of magnifying objects by concentration of rays of light; explanation of the burning-glass.

14. Explain positive and negative electricity, using as illustration the artificial magnet; the establishment of electric currents and circuits; transmission by conductors; insulation; explanation upon this principle of making and breaking of currents, of the telegraph instrument, and how the Morse alphabet is operated; explain upon the same principle the operation of an electric door bell and push button.

15. Explain the principle by which electric currents are established by battery cells.

16. Explain the principle of producing heat by electric currents; explain, upon this principle, the incandescent lamp and electric cooking utensils. What device is used in the incandescent light to prevent the fibre from burning out immediately?

17. Explain the principle essential in process of electroplating.

18. Explain, without attempt to describe technical details of the apparatus, the essential principle and process of the electric telephone—is the sound of the voice transmitted?

19. Explain the principle of wireless telegraphy, without description of the technical apparatus.

20. Explanation of the facts of radium activity as they are observed and what radium is now being used for.

## CHEMICAL SCIENCE.

1. Explanation of the difference between a chemical compound and an element; illustrating by water, and oxygen or hydrogen; approximate number of elements now recognized as such, and be able to segregate into the two classes, elements and compounds, the following substances: water, hydrogen, carbon dioxide, chalk, salt, oxygen, gold, nitrogen, carbon, lime, sulphur, chlorine, alcohol, sodium, ammonia, mercury, iron, sulphuric acid, diamonds, phosphorus, calcium, calomel, silicon, nitric acid, radium; state the chief elements in the compounds named.

2. Explanation of the difference between a chemical compound and a physical mixture; illustrate by comparing the properties of oxygen and hydrogen with their chemical compound, water, as to density, inflammability, visibility, ability to support combustion, effects from taking inter-

nally; compare in same way the distinguishing properties of sodium and chlorine with those of their chemical compound, common salt; physical mixtures of hydrogen and oxygen as compared with water; speculate upon what becomes of the properties of the two elements at the moment of chemical combination and upon the origin of the properties of the resulting compound; compare in same way the properties of nitrogen, oxygen and hydrogen with those of their compound, nitric acid; finally compare the properties of nitrogen and hydrogen, in physical mixture, with those of ammonia, their chemical compound. How does the atomic theory account for this difference between physical mixtures and chemical compounds?

3. Does a solution represent a physical or chemical change? Explain, using the disappearance of sugar in coffee, or salt in soup, as illustration. Is this process a matter of atoms or of molecules? Is the change of a solid to a liquid or of a liquid to a gaseous state physical or chemical? How do you justify your statements? Is the process by which iron rust is formed a physical or chemical change? Why? Is the process of crystallization a physical or chemical process? Why?

4. If we should place some copper filings into a bottle and pour nitric acid upon them, how would you account for the warmth produced? Show the identical principle in building a fire in a stove, in bodily warmth, in warmth produced by slaking lime. Does the heat produced in these cases proceed from the same principle as that produced by rubbing two sticks together?

5. Explanation in terms as free from technical form as possible, the chemical processes involved in the burning of wood or coal, the oxidation of the blood in the lungs, the rusting of iron, the absence of rust upon zinc, gold or platinum, the slaking of lime, the raising of pastry by the use of baking soda, the effervescence of Seidlitz powders, the effervescence of soda water, the bleaching of clothes or fruit, the setting of plaster of Paris, the burning of petroleum oils, the chemical principle of photography, the lighting of a phosphorus match, the principle of common compounds of fire extinguishers. Why is it that kerosene oil burns and water does not?

6. Explanation, in general terms, but specifically enough to establish clearly, of the chemical changes involved in the following processes: Action of saliva upon starch foods; curdling of milk by acids; curdling of milk in the stomach; effects in the stomach produced by common pills taken for indigestion; changes in the blood produced by passage through the lungs.

7. In order to establish a realization of the tremendous accomplishments of modern chemical science and the unlimited possibilities of future development, outline, with as many concrete and well known illustrations as possible, the use of chemistry in the following fields:

(*a*) Medicine in the creation and application of chemical products.

(*b*) Domestic science; effects of heat upon combinations of foods; creation of new foods; analysis and testing of foods under the pure food acts.

(*c*) Chemical processes in plant growth; the chief chemical elements and compounds drawn from the soil by plants as food; chemical effects of light upon plant growth; soil analysis, chief compounds used as fertilizers; development of chemistry in agricultural stations and what these are accomplishing for agricultural efficiency.

(*d*) Chemical processes in the disintegration of rocks and upbuilding of soils.

(*e*) Advance of the industrial and manufacturing arts by use of chemical invention.

## ASTRONOMY.

1. (*a*) Draw a diagrammatic representation of the solar system with the sun as the center, the orbits of the planets, the orbit of the moon, and the orbits of a few satellites of other planets. (*b*) Designate each of the planets by its name in the proper order. (*c*) Explanation why it would be impossible in a schoolroom to show by diagram the relative distances between the planets; for illustration, suppose we draw the sun with a radius of one inch to represent the actual radius of 433,250 miles (diameter 866,500 miles), at what distances in inches must we place the mean orbits of Mercury (36,000,000 miles distant from the sun), the Earth (93,000,000 miles) and Neptune (2,792,000,000 miles)? If we wish to show in this diagram the distance of the nearest star to the solar system, how far from the sun must we place it (actual distance is 26,000,000,000,000 miles)? If the earth's diameter (8,000 miles) is represented by one inch what must be the representation of the diameter of the sun (866,500 miles) and Jupiter (88,000 miles)?

2. Light travels at the rate of 186,000 miles per second. From the foregoing and following distances, calculate the time it takes for a ray of light to pass from the sun to the earth; from moon to the earth (240,000 miles); from Neptune to the earth; from the nearest star; from Sirius (the brightest star in the heavens, often mistaken for a planet, 51,000,000,000,000 miles)? If any of these bodies should be destroyed, how long would it be before we could know it? Many stars are so far distant that it doubtless requires centuries for the light to reach us. How many times faster does a ray of light travel than a railroad train going at the rate of a mile a minute? How old were you when the ray of light from Sirius which you see started? How old will you be when the ray, leaving Sirius at this moment, reaches you? What day and time will it be when the ray of light now leaving Neptune, our farthest planet, reaches you? Be prepared to solve these or similar examples in examinations, distances being given. It is well to carry in memory the distance to the sun from the earth and the velocity of light.

3. Explanation of theory of the nebular hypothesis in formation of sun, planets and satellites, and present gaseous, liquid and solid conditions in the system; outline the principle of the planetesimal theory recently put forth by Chamberlain and Moulton.

4. Explanation of rotation and revolution of the planets, and upon this principle explain day and night, and the year. The time of revolu-

tion of each of the planets, reckoned in Earth time, is below. What, then, is the length of year for each of the planets reckoned in our time? Mercury 88½ days; Venus, 225 days; Mars, 687 days; Jupiter, 11.8 years; Saturn, 29½ years; Uranus, 84 years; Neptune, 165 years.

5. What is the length of a day upon Jupiter and of Mars if their times of rotation is about 10 hours and 23½ hours respectively? Why is it difficult to determine the time of rotation of the other planets?

6. Knowing the distance to the sun from the earth this distance approximately is the radius of the earth's orbit; find diameter and approximate circumference. With this distance of the circumference in miles and the number of days in a year, calculate approximately the average velocity of the earth in traveling through space upon its orbit. How many times as fast as the rate of a railroad train moving a mile a minute?

7. With the equatorial diameter of the earth known (8,000 miles) and the number of hours in a day calculate approximately the velocity per minute of a point upon the equator; how many times as fast as a railroad train going at one mile a minute? Does San Francisco move at the same rate?

8. Description of the sun; relative size to earth; speculation as to condition of matter; photosphere and chromosphere; sun spots; service to earth and other planets in dispensing heat and light; length of solar day? Is there a possibility of a solar year?

9. Description of moon; distance from earth; length of diameter compared with that of earth; explanation why we never see the other side of the moon; length of lunar day and lunar year; character of surface; absence of atmosphere and how we know; absence of water; explanation of intense heat rays in lunar days but probability that the surface is always below freezing point; explanation of effect of the moon upon Earth's tides; illustrations of force of gravity on moon.

10. Description of Mars; chief characteristics as seen through telescope; rarity of atmosphere; probable climate; weakness of gravity; speculations regarding the canals and habitability; possibilities of vegetation.

11. Explanation of eclipses; relative position of sun, moon and earth in eclipse of moon and in eclipse of sun.

12. State the probability regarding the solid, liquid or gaseous state of each of the other planets; the probability of air, and water upon each? The probable temperature upon each.

13. Explanation of the principle of gravity upon the planets and moon, each having a different mass; would your weight be less or greater if you were upon the surface of the moon, upon Mars, upon Jupiter, upon Mercury? Could you jump higher or lower than upon the earth? What would be the condition of our great national game of baseball if played upon the moon or sun; how large would the diamond have to be on the sun (gravity 27½ times as great as upon earth); on the moon (one sixth as great)?

14. What, in view of the foregoing physical conditions upon the other members of the solar family, are the probabilities of the existence of animals or plants similar to those upon the earth? If the forms of life upon earth have been slowly developed by the conditions of the earth would it be possible sanely to believe that life in other forms, suitable to these other conditions, exists upon these other bodies, despite the intense low and high temperatures, absence of earth, air, etc.? Is there anything in the geologic history of our own earth to suggest such a possibility?

15. Explanation of the earth's ecliptic inclination as one cause of seasons; are the conditions of other planets such as to indicate seasonal changes due to same cause; evidences of seasons upon Mars.

16. Explanation of the principle of the spectroscope and application of the fact that each of the elements in glowing condition or incandescence has a specific marking; explanation upon this principle of our knowledge of the elements of which the sun and other members of our system and of the stars are composed? What is the general conclusion from this test regarding composition of all the heavenly bodies?

17. Explanation of meteors; theories of origin; explanation of why they become intensely heated and frequently "burn up" before reaching the earth's surface; the immense numbers which enter the earth's atmosphere but pass out again.

18. Explanation of comets; visible appearance and shape; orbits and periods. Are they members of the solar system? Periodicity of Halley's comet.

19. Explanation of the following terms in a sentence or two: apparent motion of the heavens; evening and morning "stars;" the North Star; the Great Dipper; nebulæ; rings of Saturn; constellation of stars; asteroids; transits of Mercury and Venus (why no transits of other planets?); twinkling of stars and no twinkling of planets; the sun's movement and speculations concerning it; ether and what fills the spaces between planets and stars; the "end" of space.

## PHYSICAL GEOGRAPHY.

The purpose is to gather the principles and facts, common to general information and intelligence apart from technical knowledge. These outlines are intended as guides to topics in student's study stating the characteristic features to be comprehended. They do not necessarily indicate the form of any examination but rather measure the fields to be covered. Tests will aim to expose any hasty cramming of disjointed facts without sensible comprehension.

1. **Form, Size and Motions of the Earth.** (*a*) Shape of the earth: flattening at the poles; meaning of earth's axis; shortest diameter; distance in miles of its equatorial diameter. (*b*) Rotation and effects: explanation of earth's rotation; direction of rotation; approximate rate of rotation upon the equator in miles per hour; rates of rotation at the poles and other points. Explanation of the cause of day and night; explanation of varying lengths of day and night during year and at different points

of earth's surface. (*c*) Revolution of earth: explanation of earth's revolution; explanation of length of year and reason for leap year in our calendar; explanation of earth's orbit and forces which maintain it; distances in miles of earth to sun; explanation of cause of seasons and measure your comprehension of subject by ability to answer the following questions:

If the "earth's axis" were perpendicular to the ecliptic, how many seasons would we have? When do the sun's vertical rays fall upon the equator? When are the sun's vertical rays north of the equator? When are they south of the equator? How often in the year does the sun cross the equator? Where are the sun's rays vertical on September 23d and what is the result as regards night and day on the earth's surface? Where are the sun's rays vertical on December 21st? What about night and day and seasons in the two hemispheres at this time? Where are the sun's rays vertical on March 21st and what is the result as regards night and day on the earth's surface? Where are the sun's rays vertical on June 21st? What about night and day and seasons in the two hemispheres at this time? How do we get the term "Land of the Midnight Sun"? What do we mean by the term equinox?

2. **The Nebular Theory of La Place.** Outline the formation of the solar system, its sun, planets and moons according to this hypothesis: the facts of planetary heat and orbits in seeming substantiation of this hypothesis; the main points in the planetesimal theory recently put forward by Chamberlain and Moulton in opposition to the nebular theory.

3. **Mountains and Mountain Making.** Meaning of "earth's crust" and thickness; condition of interior of earth, whether liquid or solid; degrees of heat and pressure of the interior; illustrate the formation of mountain ranges and areas of depression by analogy to the wrinkling of a baked apple in cooling; explanation of subsequent minor changes in mountain ranges due to erosion, glacial action, avalanches, earthquakes and later upheavals; explanation of the facts of finding of sea shells imbedded in the rocks of the high mountain tops, and of the finding of evidences of land life underneath ocean beds.

4. **Rocks.** Process of formation of sedimentary, igneous, and metamorphic rocks; illustrate by granite, sandstone, slate, marble; explanation of stratification; explanation of horizontal folded and tilted strata; chief agencies in disintegration of rock.

5. **Fossils.** How formed in rock, in coal, in resin, etc.; significance in tracing geological history of the earth's formations.

6. **Coal.** Explanation of the term "stored sunlight" as applied to coal; description of the carboniferous age; rankness of vegetation, function of swamps in making coal; and how the deposits were covered; peat and peat bogs; existing peat bogs in Ireland; from peat to anthracite; graphite; relation of coal to carbon and explanation of the justice of the term "black diamonds" as applied to coal; location of the chief deposits of coal in the various continents.

7. **Soils.** Explanation of the differences between soil and earth, rock or dirt; chief characteristic of alkali soil, adobe, loam, and clay; meaning of rich, poor, deep, shallow wornout soil and of hardpan; current theories of the effects of plowing and loosening of soils; explanation of the effects of fertilization, irrigation and draining.

8. **Glaciers.** Cause and origin of glaciers; explanation of why the ice "flows"; composition of glaciers; rates of travel; effects upon formation of mountains, valleys, lakes, rapids, river courses; making and destroying deposits of soil; explanation of moraines, terminal and lateral; meaning and some description of conditions during the "glacial age" and effects upon animal and plant life; extent of the North American glacier and evidences of it in New England and California; some famous glaciers now existing in North America and Alps; crevasses, dangers of climbing, recovery years later of bodies lost in glaciers.

9. **Icebergs.** How formed; relative size above and below water; danger to navigation and explanation of the Titanic disaster; explanation of the forces that scatter them upon the oceans and what eventually becomes of them.

10. **Volcanoes.** Distinction between the formation of a volcanic peak and of the formation of mountain ranges; explanation of volcanic cones and how built up; chief theories of cause of volcanoes; explanation of crater, lava, pumice; meaning of active and extinct volcanoes; usual shape of volcanoes and location relative to the sea; some noted volcanoes, active and extinct; celebrated volcanic catastrophes; volcanic remains in California; evidence of volcanoes upon the moon.

11. **Earthquakes.** Theories of causes in faults, volcanic forces; explanation of focus, vibration, waves, repetition seismograph; the great California earthquake of 1906 and its fault line; famous earthquake catastrophes in history.

12. **Atmospheric Phenomena.** (*a*) Explain weight of air, air pressure, "area of low pressure," "area of high pressure"; describe the trade winds, anti-trade winds, prevailing westerlies and causes; explain evaporation and the application of principle to cloud formation; explain the principle of condensation of water-vapor and application to rain; explain rain storms, their causes, distribution, movements in relation to evaporation, cloud formation, winds, ocean currents; test your comprehension by explanation for heavy rainfall in Amazon region, Central America, Central Africa, and North Atlantic coast, by the absence of rainfall in Sahara, west of Andes and by the rainfall conditions in California. (*b*) Explain the general basis and principles of the Weather Bureau Service, its maps and forecasting system. State the theory of storm forecasting of Father Ricard upon the relation of sun spots to terrestrial atmospheric conditions. (*c*) Explain monsoons, cyclones, hurricanes and tornadoes and state regions of prevalence of each.

13. **Tides.** Explain the cause of tides in relation to gravitation, and attraction from sun and moon; be qualified to answer the following questions: How many high tides does a place have each day? How

many low tides? What is the time interval between two tides? Why is there a high tide on the opposite side of the earth from the moon? What is meant by spring tides? What is meant by neap tides? Which direction do the tides travel, east or west? In what oceans is there least interference with the progress of ocean tides? Why are tides less noticeable on the open ocean? Where are tides highest? What is meant by "sea level"? What bay is notable for its very high tides?

14. **Ocean Currents.** Explain their causes and state the effects upon land temperature of various countries of the Gulf Stream, the Labrador and Japanese currents; test your comprehension by the following questions: What is the relation of winds to ocean currents? What is the drift of tropical waters in the Atlantic? Why is the climate of the coast of western Europe so much milder than the climate of the eastern coast of North America in the same latitude? Why are the great water drifts of the Southern hemisphere less hindered than those of the Northern hemisphere? What coasts in the North Pacific are bathed by warm currents? By cold currents? Why are there great fog banks in the North Atlantic where the warm currents from the south meet the cold ones from the north? What are the dangers to navigation from the Labrador current? What difficulties to the Russian Empire have the cold currents of the North Pacific offered?

15. **General Terms.** The following terms are in more or less current use. Students should be able to explain any common characteristic cause, effect or knowledge pertaining to them common in the markets of general intelligence:

Plateau.
Geyser.
Watershed.
Barometer.
Thermometer.
Lightning.
Mineral veins.
Solar attraction.
Satellites.
Centripetal motion.
Centrifugal motion.
Expansion.
Planet.
Star.
Artesian wells.
Deltas.
Solar system.
Gravitation.
Avalanche.
Fiord.
Estuary.
Temperature.
Dew.
Dew-point.
Thunder.
Altitude.
Fauna.
Flora.
Comet.
"Shooting star."
Meteor.
Horizon.
Sea level.
Sun spots.
Newton's law.
Eclipses.
Asteroids.
The North Star.
Chronometer.
Ecliptic.
Sextant.
Tidal wave.
Density.
Atmospheric pressure.
Siphon.
Vacuum.
Specific gravity.
Center of gravity.
Contraction.
Evaporation.
Condensation.
Saturated air.
Relative humidity.
Circulation of air.
Radiation.
Light rays.
Velocity of light.
Magnetism.
The earth's magnetic poles.
Coral reefs.

## HYGIENE AND PHYSIOLOGY.

These questions cover, in a general way, the anatomy, physiology and hygiene given in the ordinary elementary school text-books. They are paged for Ritchie's "Sanitation and Physiology," New World Science Series, but can be answered by reference to "The Human Mechanism," Hough and Sedgwich, "The Human Body and Health," Davison or Martin's "Human Body," briefer course.

They deal with matters of fact and the generally accepted usages of cleansing, disinfecting, eating, exercising and bathing. They are not designed to introduce the discussion of recent triumphs in surgery, experiments in the treatment of diseases or theories in regard to the functions of organs. They care for simple, every day information about our bodies, with the emphasis on function and hygiene rather than on anatomy. They presuppose only that amount of science which it would be well for all men and women to have, but which teachers must have as a prerequisite for the more technical and specific study which they need to make the teaching of this subject effective. Some of the questions may seem trite and hackneyed, but in our upward journey, we have acquired no new joints or appendages and the twentieth century human rotates his forearm and flexes his knee exactly as his prayerless ancestor did at the advent of man. The questions on food, air, ventilation and microbes are reasonably up-to-date, and, if answered intelligently, would show that the person understands how to protect himself sufficiently to live safely in a civilized community.

Formal questions are too surely a dry and ceremonious introduction to science, but they are just as surely serviceable in finding out if one has read, thought and experimented. These questions, like all similar ones, are rather for testing breadth and depth of general comprehension:

1. Describe a typical cell. Mention several different kinds of cells composing parts and organs of the body. Explain how cells increase in number. Part II, p. 3 *et seq*.

2. What is the composition of bone? How may the animal and mineral components of bone be separated? How does cartilage differ from bone? How does a broken bone repair itself? p. 39, p. 47.

3. In the long bones of the body, what part of the bone is spongy? What part solid and compact? What good purpose does this arrangement serve? p. 40, p. 41, p. 43.

4. Explain the mechanism of the hinge and of the ball and socket joints of the body, giving examples of each. p. 46.

5. How are bones held together at the joints? p. 47, p. 48.

6. Describe the spinal column. How many vertebrae are there? What differences in their size and shape? How is jarring of the spinal column prevented? p. 34, p. 49.

7. How many ribs are there? Have men and women the same number? To what are the ribs attached and in what ways? What purposes do the ribs serve? p. 35, p. 36.

8. Name and describe the bones of the forearm. Describe the way in which they are articulated at the elbow. p. 32.

9. What is "rickets"? How may it be prevented?

10. Give the two great rules of hygiene of the bones. p. 54 *et seq.*

11. Give the great points of difference between the voluntary and the involuntary muscles of the body. Examples of each kind. p. 62.

12. Describe the way in which muscles act to keep the body erect. p. 65, p 66.

13. What are tendons? What purposes do they serve? Which is the largest tendon of the body? Its situation? p. 63, p. 64.

14. Upon what three things does the strength of a muscle depend? p. 73.

15. Give four practical rules for muscular exercises. Mention several forms of outdoor exercise that call into use large groups of muscles. p. 73.

16. Give the composition of the blood, describing the different kinds of blood corpuscles. p. 146, p. 147.

17. Give four points of difference between veins and arteries. How could you distinguish a cut artery from a cut vein and what would be the emergency treatment in each case? p. 143, p. 144.

18. Give as nearly as possible the location of the heart, its size and general appearance and name its four cavities. p. 136, p. 137.

19. What is the function of the auricles? Of the ventricles? Trace the blood in its course from the left ventricle to the left ventricle again.

20. When does the heart rest? p. 137, p. 144. Describe the way in which a heart beat takes place. p. 145, p. 140.

21. What is the average number of heart beats per minute in an adult? In an infant? p. 140.

22. Where is the pulse commonly felt? Does the pulse show anything in regard to the strength and rapidity of the heart's action? p. 137.

23. What are capillaries? Where are they found? Give some idea of their number. How do they differ from veins and arteries? p. 142.

24. What is the diaphragm? What uses does it serve in the body? Name three important vessels that pass through it. p. 162.

25. What is the function of the red blood corpuscles? Does their number in any way indicate health or the reverse? How may they be increased in number? How reduced? What is anemia? p. 147, p. 148.

26. What are the functions of the phagocytes? How are they affected by alcohol? p. 147, p. 148.

27. What causes the clotting of blood? What part of the blood gives tenacity to the clot? Of what benefit is this power of clotting to us?

28. Where in the body is the flow of the blood most rapid? Where is it the slowest? About how long does it take for blood to make a complete circuit of the body? p. 145.

29. What are lymphatics? What purpose do they serve in the body? Where do they originate? Where is the main lymphatic trunk in the body? What are the functions of the lymph nodes? p. 151 *et seq.*

30. Explain how the different body cells get their nourishment from the blood and how their wastes are carried away. p. 149, p. 150.

31. Make a longitudinal section of a molar tooth showing the pulp cavity and the various tissues that compose the tooth. p. 95.

32. How many teeth in a child's deciduous set? How many in the permanent set? What is the usual cause of the decay of the teeth? Give four ways in which bad teeth may affect the general health. p. 95, p. 96.

33. How many salivary glands are there? Where are they situated? What is the function of the ptyalin of the saliva? Is the saliva acid or alkaline? Is this favorable or unfavorable to the growth of bacteria in the mouth? p. 97, p. 92.

34. Describe the alimentary canal, giving approximate size of each part of it. p. 90.

35. What is the composition of gastric juice? What kinds of food may be dissolved by it? About how long does a meal usually remain in the stomach? p. 92.

36. What are the villi of the small intestine? What is their function? What digestive juices come in contact with the contents of the small intestine? p. 93.

37. Where is the liver placed in the body? Its size? Its average weight? Its temperature after a heavy meal? Reason for this? p. 99, p. 18, p. 116.

38. What changes take place in the blood as it circulates through the liver? Is the bile acid or alkaline? Has it any digestive function? p. 138, p. 145, p. 99.

39. Give rather fully the story of the digestion of a piece of bread and butter. General summary of digestion. p. 110 *et seq.*

40. What do you understand by osmosis? What part, if any, does osmosis play in the absorption of liquefied foods? p. 93, p. 94.

41. Excluding mineral salts and water, what are the three great classes of foods? Give the chemical characteristics of each class. Name the most important foods in each class. p. 82, p. 83.

42. What do you understand by a well-balanced diet? Make out a breakfast, a dinner and a luncheon menu, of moderate price, for one leading a sedentary life. p. 124 *et seq.*

43. Are there special foods for special organs, as "brain foods," "nerve foods," etc.? p. 127.

44. Do children need a special diet? If so, what general principles should guide us in the selection and preparation of food for them? p. 78 *et seq.*

45. What foods are especially conducive to the storage of fat in the body? Why? Are proteid foods usually a source of fat? p. 124.

46. What are the arguments for and against vegetarianism? What good purpose, if any, do such vegetables as celery, lettuce, watercress, etc., serve in our diet? p. 126, p. 127.

47. Describe the respiratory tract, naming the organs in order of their nearness to the outside air. p. 161 *et seq.*

48. Do the windpipe and bronchial tubes collapse when we are not

breathing? Why? Does the esophagus collapse when we are not swallowing? Why? About how long is the windpipe? p. 166.

49. Give the reasons why it is unhygienic to breathe through the mouth. What is usually the cause of mouth-breathing in children? How can this be overcome? p. 168.

50. Describe fully the changes in size and shape that may take place in the thorax in inhalation and exhalation. p. 163, p. 164.

51. When are the respiratory muscles contracting? When are they relaxing? Is ordinary quiet breathing a voluntary or an involuntary activity? When not exercising, about how many times do we breathe per minute? Per hour? p. 163.

52. In ordinary quiet breathing, about how many cubic inches of air pass in and out of the lungs at each breath? About how much air can the lungs contain? May the capacity of the lungs be increased by exercises? Indicate some valuable exercises. p. 180, p. 170.

53. Compare the composition of fresh air with that of expired air. The depressing and injurious effect of exhaled air really depends upon what component? How many cubic feet of air do we breathe per hour? In rooms that are artificially ventilated, what is the standard allowance of air, in cubic feet, per hour, per person? Why is such a large allowance made? p. 180 *et seq.*

54. How is oxygen carried to the various cells of the body? How is carbon dioxide carried away from them? p. 148.

55. What is the object in opening windows at both top and bottom? Give some reasons why sleeping porches have become popular. Is night air dangerous? Why? p. 183, p. 184.

56. Where are the kidneys situated? What is their function? Name the five most common causes of kidney trouble. p. 186, p. 187.

57. Describe the structure of the skin; of a sweat-gland. How do hairs grow from the skin? p. 192, p. 194.

58. What causes the little lines and ridges on our finger tips? How are we enabled to judge temperature, smoothness, hardness, etc., by the finger tips? How is the secretion of perspiration controlled? Illustrate. Explain the function of the skin as a regulator of body temperature. p. 193, p. 194, p. 198, p. 248.

59. Can water, poisons and germs readily enter the body through the uninjured skin? Why? p. 191.

60. What are four sensible rules for bathing, from the point of view of general hygiene? p. 200 *et seq.*

61. Describe briefly the brain and the spinal cord. How many pairs of cranial nerves are there? How many pairs of spinal nerves? What are the functions of the spinal nerves? p. 213, p. 217.

62. Where is the grey matter situated in the brain? Where is the cord? About what is the weight of the normal adult brain? What are reflex actions? Give several examples. p. 213, p. 214, p. 217.

63. May the nervous system be trained? Does it usually require training? Illustrate. How are habits formed? Is it well to be a "slave" to even a good habit? Why? p. 221, p. 222.

64. Describe the chambers of the ear and give the function of each chamber. What causes most of the serious ear troubles from which people, especially children, suffer? p. 252, p. 253, p. 256.

65. Where are the tear glands? Where are the ducts that carry off the excess of tears? What kind of lens is the cornea? What kind is the crystalline lens? What is the retina and where is it? In a normal eye, where are the rays of light entering the eye brought to a focus? What is the "yellow spot" of the eye? Where is it? What is the blind spot? Where is it? p. 260, p. 261.

66. What are some of the most frequent results of eye-strain? Will going without glasses help a child to outgrow eye trouble? p. 270.

67. What is the cause of infectious and contagious diseases? Mention two great scientists who helped to prove this. Part I, p. 6, p. 7, p. 142, p. 143.

68. Mention several clearly defined microbic diseases. Are these diseases preventable? How? What are disinfectants? Mention several. p. 36, p. 37, p. 158.

69. Give five of the most common ways by which tuberculosis is spread. What very striking proofs have we that tuberculosis is a curable disease? Give the main points in the hygiene of preventing and treating tuberculosis. p. 54 *et seq.*

70. What part do some insects play in the spread of microbic diseases? Illustrate. p. 145, p. 110.

71. What are toxins? Anti-toxins? What is vaccination and how does it prevent smallpox? Why are "Fourth of July wounds" frequently dangerous? pp. 11, 12, 13, 29, 122.

72. In San Francisco, what matters of health and sanitation are directed and controlled by the city government? Why?

73. How should cuts and wounds on exposed parts of the body be cared for? What should be done if pus forms in such a wound? What is pus? Are pimples and boils beneficial? How are they caused? What do they indicate? p. 26, p. 27.

74. What do you understand by "Pasteurizing" milk? Is city milk usually pasteurized? Is it quite as digestible for small children as raw milk? Is it safer? p. 156.

75. Which suffer more from microbic diseases, children or adults? Why? Is it wise to let small children play in city dirt? Why? p. 169, p. 170.

76. Give some of the reasons why the United States government appropriated $100,000 to destroy rats in and around San Francisco a few years ago. Was this wasteful? p. 175.

## SANITATION AND GERM DISEASES.

(All topics outlined will be found clearly explained in Ritchie's Primer of Sanitation.)

1. Teeming life: earth's surface where cold and infertility of soil does not forbid, teems with plant and animal life, from the gigantic sequoias and elephants to the microscopic germs of which 25,000 laid in a row would make hardly one inch.

2. The fierce struggle for existence—to eat and to be eaten; illustrate by what would happen if even the tiniest bacteria were permitted to multiply without molestation (Ritchie Sanitation, p. 18, and Kellogg Animals and Man, pp. 399–410); the ancient enemies of man have been the wild beasts and his fellows, but now, as modern science is showing, his fiercest and most formidable of all enemies are tiny organisms so small that millions of them have plenty of elbow room in a single drop of water; illustrate by the relative number of deaths from diseases of bacterial origin; chief bacterial diseases; general means of entrance to the human body; toxins and anti-toxins.

3. Germ diseases due to entrance of bacteria through the air passages; methods by which each of the most common and fatal of these diseases are transmitted and measures for prevention and resistance.

4. Germ diseases originating in the alimentary canal; how each is transmitted and means of prevention and resistance. Chief diseases caused by bacteria entering wounds; means of prevention.

5. Chief diseases transmitted by insect bites, stating the insect responsible for each and measures for prevention vaccination; principle of operation; decrease of smallpox since vaccination was introduced.

6. Dangers from the house fly; from drinking water and public drinking cups; modern measures of sanitation—cleaning up cities; care of dairies and water supplies; fresh air; prevention of spitting in public places; personal cleanliness.

## CURRENT BIOLOGICAL PRINCIPLES AND THEORIES OF EXPLANATION.

1. Explanation that all plant and animal bodies are made up of single cells as ultimate units; varieties of cells in the human body and essential characteristics of bone, muscle, nerve, and reproductive cells; explanation that each individual animal or plant begins development as a single cell and some outline in essential particulars of growth by cell division and latent differentiation of cells to form the different kinds of tissue; illustrate by the process of incubation of a chicken egg.

2. Description of some one-celled organism and its activities; trace the essential relationships in the upward scale of complexity by which processes of nutrition, reproduction, and life habits are operated by organs of ever increasing specialization.

3. Illustrations of the development of animals through geologic ages; fossil evidence that earliest animals and plants were of elementary and simple types, passing later to the complex types; characteristics of invertebrate age (silurian), Devonian age (fishes), Carboniferous age (coal deposits and amphibians), reptilian age (mesozoic) with appearance of bird-like reptiles and later true birds, and finally mammals; dispute as to the period of the first evidences of man; life of primitive man. (Consult Le Conte's larger geology for particulars or other interesting geologic history.)

4. Explanation of the process of cross breeding of plants by which new forms are created; difference between propagation by seed and by cuttings, grafting or budding; explanation of the method of Luther

Burbank in creating new plant forms possessing certain desired characteristics as an objective goal; illustration of this process in the creation of plants having flowers of a desired coloring; the fact and theory of tendencies to variation from the characteristics of the parent plants.

5. Explanation, upon this principle of cross breeding, of the creation of new breeds of poultry, pigeons, horses, dogs and other animals; also, explanation of breeding to secure a certain coloring or characteristic feature, practiced by fanciers for prize shows; extent of the use of this principle in the creation of useful varieties of domestic animals and of trees and plants under cultivation; explanation of the term ''artificial selection'' as applied to this principle.

6. Explanation of the principle of Mendelian characteristics; upon this principle do we expect an individual to be a compromise average of the hereditary characteristics of the two parents or may we expect inheritance of the qualities in one parent to the exclusion of certain qualities of the other; reappearance of characteristics after one or two generations.

7. Explanation of the term ''natural selection'' as identical with artificial selection in principle except that the general laws and conditions of nature, and not the design of man, govern the selection.

8. Explanation of the theory of the creation of all the various species of animals and plants upon the principle of natural selection; illustration by geologic origin of birds and mammals from earlier reptilian forms; explain ''adaptation to environment'' as illustrated by porpoises, whales and other air breathing mammals now living in the water; explanation of the term ''rudimentary organs,'' illustrating by the geologic history of the horse, showing the rudimentary bones indicating former toes, the appendix now highly developed in the cow but ''rudimentary'' in a number of animals.

9. Explanation of the distinction between ''hereditary'' and ''acquired'' characteristics; present status of the dispute whether or not ''acquired characteristics'' can be inherited (or transmitted) from one generation to another, illustrating by familiar cases as the small feet of Chinese women, cutting off the tails of rats, etc. If acquired characteristics are not transmitted what shall we say of the familiar notions that children profit by the exercise and acquired knowledge of their parents in mathematics, in physical labors, in music, in use of alcoholic liquor, etc.? What shall we say of the prevalent notions that ''acquired'' diseases are inherited by children in the sense that the child is born with the germs of a disease ''acquired'' by his parent?

10. Carefully and clearly explain the distinction between inheriting habits, knowledge, or special ability ''acquired'' by a parent, and developing a power or characteristic which may have been inherent in a family or race and may have lain dormant through some generations.

11. Identify Charles Darwin, August Weismann, Herbert Spencer, and Gregor Mendel, in relation to features of the previous theories with which their names are familiarly connected.

### SECTION III.

## LANGUAGE.

This section represents the standard requirements for admission covered by paragraph 3 of the principal's recommendation. Unlike the work outlined in other sections, which for the present offer studies merely in an advisory sense, Section III is required before students can be assigned as student teachers. Those who fail in the tests of Section III remain upon the unassigned list until they are qualified and students while upon the unassigned list make no progress toward graduation. The standard for passing in spelling and language is 94 per cent and for grammar 90 per cent. The knowledge called for in these tests is so fundamental and essential to any responsibility of a teacher that students can not be given this responsibility over classes until practical perfection is assured.

(*a*) **Spelling.**—The spelling list herewith given represents words selected from those in common written usage and which are frequently misspelled by pupils. The test will be upon 250 words selected from this list. As a method of study, it is suggested that students have dictated to them without previous study, one hundred or less words at a time. The words which are missed should be copied into notebooks and studied. A great deal of unnecessary work will in this way be saved.

**List 1.**

able
doing
dream
flying
brother
candy
clear
below
better
back
along
drew
eaten
feet
going
sides
time
trees
next
March
inside
paper
same
such
soon
yet
then
fell
left
together
sister
near
room
while
told
safe
miles
then
short
west
gardens
found
street
beside
about
first
after
away
called
began
down
foot
each
best
clean
east
deal
August
for
eggs
given
from
hard
night
place
tame
that
still
heat
just
more
little
three
years
became
happy
letters
reader
Saturday
when
table
because
bright
children
fright
eighteen
either
eleventh
else
fairies
fairy
fifteen
fine
finger
fly
floor
flower
fourteen
goes
good-bye
rain
read
rang
red
ride
sang
school
some
spell
story
well
were
western
wrote

## List 1A.

above
does
early
four
only
your
why
very
ready
poor
once
most
again
any
goes
said
ocean
money
done
head
have
don't
bread
asked
aunt
know
earth
door
behind
grandfather
beautiful
Monday
working
water
nothing
mother
father

## List 2.

dirty
horses
leaves
made
make
much
news
noon
paid
strong
team
than
save
rode
thing
third
threw
must
lesson
markets
getting
keeping
living
seeing
telling
tenth
talking
ladies
thicker
never
morning
pretty
marching
sixty
reached
opened
slowly
stream
thanked
wrong
hundred
outside
seventh
summer
whenever
happiest
November
September
yesterday

## List 2A.

four
none
heard
where
word
should
month
Tuesday
wagon
world
worth
would
young
yourself
hadn't

## List 3.

deep
also
before
hurt
home
line
own
body
cute
since
seen
smart
this
those
used
even
cool
claim
chair
matter
hurried
husband
hungry
horrid
labor
nearly
nobody
noted
reason
painful
fifth
fifty
member
message
picture
pencil
paying
noisy
nicely
myself
season
shown
sight
sixth
smoking
payment
pleasure
pleasant
perhaps
perfect
question
rather
quickly
returned
risking
seemed
swimming
thousand
Thursday
selfish

wife
tight
town
while
which
size
skill
slept
stole
taught
tease
upon
upper
walked
owner
mouse
must
named
picnic
protect
repeat
fresh
ground
hurry
grows
growled
harmed
angry
always
being
drawn
dislike
dripping
duty

recess
middle
moment
fitted
freely
hardly
kindness
lonely
loaded
mailing
meaning
meeting
rich
right
sleeping
uncle
under
until
useless
saving
reading
spoken
taking
windy
wishing
turning
wedding
almost
absent
address
broken
dearly
failed
famous

teaching
thinking
ticket
useful
vacation
willing
window
written
trouble
unhappy
traveled
speaking
spelling
stopped
stopping
thirteen
number
obtain
offered
account
across
advance
around
burned
dealing
afraid
action
fighting
fortune
himself
package
naughty
ourselves
October

several
serious
weekly
sitting
president
animals
anything
another
eleven
evening
every
crowd
burning
belonging
everything
February
figure
finished
lonesome
interest
intended
frighten
frightened
opening
protection
relations
seventeen
unable
suddenly
followed
frightful
handsome
gathered

## List 3A.

both
caught
cried
great
none
off
tied
tried
warm
wild
against
whose
flew

duty
dies
brought
build
brown
enough
fierce
proved
pushed
toward
worse
worst
heavy

didn't
driving
giving
haven't
leaving
often
o'clock
somebody
quarter
sometimes
woman
warning
trouble

among
building
removed
lovely
million
married
watching
either
carried
couldn't
cousin
Wednesday
eighty

### LIST 3A—Continued.

whom
praise
many
few
easy
dead
front
whole
rough
ought
pulled
fruit

fought
can't
fourth
greatest
thought
trying
though
something
through
worry
welcome
center

seldom
people
pages
instead
islands
southern
noticed
breaking
earnest
during
crowd
coward

afterward
earnestly
invited
listening
wonderful
moving
wondering
worried
prettier

## List 4.

avoid
claiming
climax
fed
fearful
distance
hoping
mixed
these
tiny
tired
wives
ugly
capital
attend
urge
trapped
wading
surely
reply
quite
showed
selves
timid
wages
rude
quit
seeming
sort
truthful
waited
replied
hearing
joined

pupil
peace
lying
jolly
hasty
illness
dreary
claimed
circus
feeble
closely
dropped
foolish
growth
needs
grudge
secret
apply
costly
cutting
easily
easier
forcing
increase
remain
special
raising
struggle
softly
published
tiresome
higher
injured
fretting

mountains
peaceable
excuse
further
foggy
feeling
mining
destroyed
running
thoughtful
swiftly
shining
suppose
screamed
happened
engaged
dragged
faithful
regardless
thanksgiving
permission
introduced
liking
capsize
arrived
climate
employed
escape
minister
included
really
situation
remember
punishment

cheating
expected
cheated
appeared
fifteenth
insisted
arriving
injury
uncertain
accident
certainly
require
unexpected
applied
excellent
changing
appointment
agreeable
uncertain
favorable
collected
furious
concerning
defeated
correctly
destruction
contented
possible
concluded
crowded
presented
connected
provided
dangerous

## LIST 4—Continued.

gentle
chance
advice
certain
awful
defeat
divide
helped
missed
making
safely
servant
sleeping
simply
entered
round
detain
afford
agreement
cheerful
farther
failure
stepping
required
promptly
mistake
likely
holidays
remarkable
questionable
twelfth
whether
whispered
objected
interested
important
finally
explain
direction
absence
charging
forgotten
officer
daughters
invitation
difference
directly
families
generally
gradually
unavoidable
uncomfortable
unsatisfactory
twentieth
jelly

## List 4A.

busy
careful
climbed
height
mind
ninth
obey
theirs
wear
Christmas
coming
dared
fierce
half
piece
straight
thief
parents
debt
doubt
carrying
helping
carefully
climbing
compared
friendly
courage
hiring
promise
proving
purchased
laughed
loving
parade
tomorrow
touched
wealth
tearing
wondered
usually
jealous
breakfast
bottom
grammar
weather
promised
measured
medicine
wandered
minutes
thorough
theatre (ter)
terrible
wharves (fs)
receive
lemon
thoroughly
knowledge
neither
business
neighbor
countries
although
destructive
answered
interview
anxious
fastened
argued
guessed
autumn
dreadful
balance
irregular
buying
genuine
believe
doubtful
borrowed
drying
bother
error

## List 4B.

add
addition
age
alike
alive
answer
ate
babies
barn
bear
beat
begun
berry
blow
break
catch
clock
eight
hear
hole
house
knew
known
large
learn
lives
live
lie
mice
most
mouth
nineteenth
other
please
quick
race

## List 5.

acre
admission
advising
aimed
allowable
anger
apples
approached
approaching
approving
approved
ashamed
attached
attention
average
awakened
aware
bargain
bashful
begrudge
behavior
belief
berries
bleed
bitten
bled
board
boast
born
boundary
bragged
bragging
brains
brittle
bravely
breath
bridge
brief
buggy
buggies
burden
busily
button
butcher
calf
calves
camping
cane
candidate
captured
carpet
carpenter
cattle
ceiling
chain
chased
chasing
checked
cherries
childish
Chinese
circulating
citizen
classes
clever
climax
closet
clothes
cloudy
coal
coffin
coin
college
colony
coloring
colors
column
command
commanding
commerce
commission
companion
composition
concern
congress
constitution
consulted
contempt
contract
convention
conviction
conversation
copied
copy
corner
correction
cotton
cough
counting
cozy
creature
creaked
creek
cried
crept
crushed
curtain
daily
dairy
damage
darling
dawned
debate
deceitful
declaring
decorated
defence (or se)
defied
delivery
dentist
depot
desert
details
detective
devote
devoting
diamond
diet
digestion
digging
disabled
displeased
dispute
distress
district
division
domestic
durable
duties
eagle
edge
education
effect
electors
election
element
encourage
encounter
enduring
enforcement
enjoyable
enjoyment
equator
establish
events
example
expert
explore
explorations
express
extended
fainted
fading
fancy
farewell
fashionable
feather
feast
feature
fellow
ferry
finger
fire
flight
floating
forbidden
forest
forgiven
forgiving
forgetting
foundation
fountain
fraction
frantic
freedom
frosty
general
generation
geography
German
giant
glacier
gloomy
government
governor
grabbed
gradual
graduated
greeted
groceries
guided
guilty
happily
harbor
harness
hastily
health
heaven
heavily
heroes
history
hitched
honestly
honor
hopeful
hopeless
hourly
however
howled
ideal
impressed
Indian
infant
insane
instruction
insult
insurance
intention
invaluable
invention
iron
isthmus
Italian
janitor
Japanese
journey
keen
kindly
kitchen
language

## LIST 5—Continued.

latter
largely
laundry
lawyer
leaf
learning
level
Lincoln
loaf
local
location
machinery
madness
manfully
manly
manufacture
manufacturing
material
matches
mending
merchant
merry
mild
miner
mischief
model
modern
modest
modify
modified
moisture
monkey
monument
muddled
muttered
nagged
namesake
native
nation
natives
natural
negroes
needles

noble
northern
nose
nurse
nursery
onion
opened
operation
ostrich
ounce
overtaken
oyster
observe
occupation
odd
panic
payable
phrase
piano
playful
pleasing
plural
poetry
popular
population
positive
postmaster
pours
powerful
powerless
predicate
prisoners
proclaim
proceed
production
progress
progressive
progressing
pronouncing
public
pumpkins
pure
purple

queen
quotation
racing
rainfall
rebelled
ranch
reconsider
record
refreshment
refusal
rejoice
reliable
religion
represent
resident
resign
respectable
revenge
review
rising
robbery
Roman
route
ruined
saddle
safety
sailing
sake
salary
sample
savage
scenery
section
selected
senate
sensation
sentence
sermon
shadow
shamefully
sharpen
shelves
shipped

shores
shoulders
shutting
silly
singular
sobbing
sobbed
soldiers
solid
somewhat
source
Spanish
spared
square
stationary
steamer
steep
stomach
strict
strictly
studious
surface
surrender
sugar
suspect
task
teasing
tempting
test
therefore
thicker
thirsty
title
tobacco
tongue
topic
total
tough
training
trapped
treasure
treating
tremble

trembling
trial
triangle
tunnel
understand
undertake
uneasy
unfair
unheard
unpleasant
unreasonable
untruth
upset
valuables
venture
victorious
victory
village
villages
violin
visitor
voice
volcanoes
vote
voting
voyage
voyages
walnut
wavering
weaken
wheat
whoever
wholesome
wicked
widely
widow
width
wolves
womanly
wounded
yonder
zero
zone

## List 5A.

pound
power
powder
present
prettiest
pump
punish
purchase
rail
reach
real
reason
remark
return
reward
ribbon
rise
risen
rising
road
rope
rose
rung
sail
sailor
satin
scared
scratch
sea
seasick
seated
second
seam
sent
seventy-three
sew
sewing
shed
shelf
sheet
shone
shoe
shook
silver
simple
situated
sixtieth
sleeve
smell
smelt
smile
smiling
smoke
snake
sorrow
sorry
sound
south
specially
spending
spent
spices
spill
spoke
spoon
spool
sprinkle
steal
steer
stuck
stiff
stingy
stocking
stomachache
storing
stories
study
studying
stumble
supper
surprising
sweet
swam
swing
swung
tail
tale
talk
target
taste
teach
teacher
tea
tear
teeth
thief
thirty
thirteenth
thread
throw
throat
thumb
tiger
toad
toss
tore
torn
tossed
touch
toy
track
train
traveling
traveled
trick
tribe
try
trip
tripped
trotting
trolley
trout
true
trust
truly
truth
tumble
tune
twelve
twenty
twenty-five
twice
twin
ugliest
unlucky
unloaded
unless
untie
use
using
valentine
valleys
vessel
view
visit
visitor
waist
waking
wake
waste
watch
weak
weed
week
weigh
westward
wharf
whatever
wheel
whiskers
whisper
whipping
wolf
woke
wood
worn
wound
world
youth

## List 6.

accept
accommodate
accompanying
acknowledge
acquaintance
acquainted
actually
admitted
advertisement
advise
advisable
affectionately
all right
allowed
already
altogether
ambition
amount
amusement
anxiety
apologize
apologizing
apology
appearance
applying
application
argument
arrangement
arrival
assistance
attacked
attacking
attempt
attractive
automobile
awfully
awkward
beginner
beginning
broad
buried
busier
capitol
caring

## LIST 6—Continued.

cheerfully
chiefly
choice
choose
chosen
choosing
circumstances
commenced
committee
committed
common
compelled
compel
complete
completely
compliment
conceited
conclusion
consent
considerably
considered
continually
controlled
control
convenient
cordially
correspond
courageous
course
cozy
criticize
cunning
curious
curiosity
deceiving
decide
deceive
decision
delayed
denied
denying
dependable
deserve
desirable
desiring
despair
desperate
despise

destitute
determined
device
dictionary
differently
difficult
dining
disappeared
disappear
disappointed
discuss
dissatisfied
distinctly
distinguish
distress
distribute
disturb
disturbance
double
doubly
doubtless
dying
eagerly
effort
empty
emptied
enemies
energetic
energy
engagement
enormous
enthusiasm
envelope
entirely
envied
envious
errand
escape
especially
exactly
exceedingly
excel
excellence
exceptional
excitement
expense
expensive
experience

explains
explanation
extremely
familiar
favorably
fearful
fiercely
formerly
grateful
grieve
grief
happiness
hating
hated
hesitated
hideous
hiding
honorable
horrible
hungrier
idea
imaginable
immediately
immense
imposition
impossible
inclose
indeed
indignant
industrious
innocent
inquired
interfere
interrupt
issued
jellies
judgment
justified
least
leisure
length
loose
losing
magazine
managing
manageable
management
manner

marriage
meddle
merely
messenger
miserable
miserably
motioned
necessarily
necessary
necessity
needless
neglected
nephew
niece
nervous
nineteen
nineteenth
ninetieth
ninety
nonsense
noticeable
nuisance
numerous
obedience
oblige
obligation
occasion
occasionally
occupied
occurred
occurring
offense
omitted
omit
opinion
opportunity
opposing
opposite
orchards
ordinary
ordinarily
organize
original
owing
parlor
particular
particularly
passenger

## LIST 6—Continued

patient
peaceable
peculiar
peculiarly
permit
permitted
personal
persuade
physician
pitcher
pitied
plainly
planned
possessed
possibility
prairie
practice
practicing
precious
preferred
preparation
preparing
previous
principle
privilege
probably
proceeding
profitable
prominent
proportion
prosperous
proud

provoked
quarrel
quarreling
quarrelsome
queerly
quiet
quieted
quietly
quitting
rain
rapidly
rapped
readily
realize
realized
reasonable
reasonably
receipt
recently
reception
recipe
reckless
recognize
recommend
recommendation
referred
referring
regretted
regularly
relief
relieve
relieved

repetition
requiring
resembled
responsibility
respectfully
responsible
restaurant
ridden
ruling
saddest
satisfied
satisfactory
scarcely
scattered
scholar
scholars
scolded
search
securely
sensible
separate
separation
severely
shaking
shouted
signature
silence
similar
sincerely
sincerity
skating
skilful

smooth
smother
sorrowful
splendid
stayed
stretched
succeed
succeeded
successful
sufficient
suggest
suggested
suggestion
suitable
support
surprised
sympathy
tardiness
tedious
temporary
thieves
threatened
tremendous
trimmed
troublesome
truly
tying
vacant
vicinity
villain
violets
weight

## List 7.

ability
abruptly
absolutely
absurd
abundant
abused
acceptance
acceptable
accomplish
accurate
accustomed
acquired
amusing
ancient

annual
announcement
annoyance
anticipate
appetite
applause
appreciation
appropriate
approval
apricot
arctic
athletic
atmosphere
attentive

audience
authorized
beau
beggar
beneath
benefited
biting
boiling
bouquet
bravery
breathe
bridegroom
brilliant
bruise

budging
calendar
campaign
cannery
capacity
captain
catalog (gue)
carrier
career
cautiously
cashier
caucus
ceased
celebrated

## LIST 7—Continued.

celebrating
cemetery
century
cereal
ceremony
certainty
certificate
champion
character
changeable
charitable
chimneys
chocolate
chronic
cigarette
circulation
civilization
classify
cleanse
clique
clothing
coax
cocoanut
collapse
collar
colonel
colonize
combine
combining
combination
comforter
compensate
competent
competition
complexion
compromise
conceal
concealed
condemned
conductors
confederacy
confederate
confession
confidential
congenial
conjunction
conquered
conscience
conscious
conspicuous
constitution
continent
contradict
contrary
convinced
copper
corporation
costliest
costume
courteous
courtesy
credential
creep
creditable
criticism
criticising (zing)
criminal
crippled
cruelly
cushion
customs
daisies
deafening
debris
deceit
decisive
declaration
dejected
delicate
delicious
deliberately
delinquent
democracy
depth
denouncing
descent
descendant
descended
descend
descriptive
despatch
despicable
destination
develop
digestible
dignity
dignified
diminished
diploma
disapprove
disastrous
disguised
disease
disgraceful
disguise
disposition
dividend
divisible
divorce
drudgery
dumb
devoured
economy
edition
efficient
electricity
eligible
eloquence
embarrass
embroider
emergency
eminent
emphasis
employee
encroach
endeavor
endurance
endure
engineer
enticing
epidemic
equally
equipment
equipped
equivalent
erect
escort
essential
eternal
etiquette
evaporate
evidence
evident
excursion
exhausted
exertion
exhibition
expedition
explanatory
exquisite
familiarity
fatally
fatigue
feasible
feminine
fertilize
fertile
fever
fiendish
fiery
financial
flattered
forbade
forcible
forcefully
foreign
forfeited
forfeit
fragrant
fraud
freak
freight
frigid
frivolous
frontier
fulfill (fil)
funeral
gasoline
generosity
genial
gently
genteel
ghost
gigantic
gladden
glimpse
gorgeous
gracious
gratitude
grippe (grip)
groaned
groups

## LIST 7—Continued.

guaranteed
guardian
guests
gymnastic
handling
heartily
heeded
heroism
hoarsely
homely
horror
hospitable
hospital
hostess
hospitality
humorous
hustler
iceberg
identity
idleness
ignorance
illegal
illegible
illustrate
illustrating
imaginary
impartial
impatient
incapable
incredible
incurable
indecent
independent
indication
individually
inferior
inhabitants
injurious
inquiry
insinuate
insistence
inscription
instinct
instrument
intelligence
interior
interpret
invalid
intimate
invisible
jammed
jealousy
jewelry
justice
kerosene
laziness
legislature
liberal
library
license
lilies
lovable
luxury
magnificent
maintain
majority
mature
malaria
malicious
maniac
manipulate
manufactory
martyr
matinee
meanness
meager
measles
medical
medium
meek
melon
memorize
merchandise
measurement
millionaires
mirror
mischievous
misunderstanding
missionaries
misspelled
moisten
monstrous
moral
mortified
mosquito
mosquitoes
mountainous
municipal
muscle
museum
musician
naturally
navigators
necessitate
nickelodeon
nominate
nomination
notional
officious
opera
opponent
optician
optional
ordeal
orient
ornament
orphan
outrageous
obedient
obstacle
obstinate
obvious
occurrence
odor
pansies
paralyzed
paralysis
pardon
parole
partial
partiality
partner
patience
pattern
patriotism
peninsula
penitentiary
performance
permanent
perseverance
perspire
petition
Philippines
physical
physically
physiology
pierce
plateau
plentiful
plumbing
poison
poisonous
policy
politics
popped
populous
portrait
poultry
prairie
precede
preceded
prejudice
priest
proficient
punctually
punctuation
puncture
purposely
pursue
Quaker
quality
raisins
rapidity
rarely
rascal
recollect
reconcile
reference
representatives
reservoir
resignation
rheumatism
ridicule
rifles
ripen
rogue
rural
Sahara
salad
salmon
saloon
sandwiches

## LIST 7—Continued.

sardine
scheme
scissors
scoundrel
scratching
scribbled
seceded
secretary
security
seize
seized
senior
sense
senseless
sentiment
serviceable
shaping
shrewd
shriek
sliding
sociable
society

Southerners
souvenir
specialty
specimen
spirit
steadily
stenography
stupidity
substantial
superintendent
supervisor
supplies
surgeon
suspicious
symptom
systematic
tariff
tapioca
taxable
telegram
telegraph
temperature

tendency
tennis
terrific
terrified
territory
terrify
territories
theories
theory
thrashing
tomato
toothache
trifle
trifling
truant
tuition
turkeys
typhoid
unconcerned
unconscious
unfortunate
utterly

vaccinate
varieties
variety
various
vary
vaudeville
vegetable
vermicelli
victim
vineyard
vineyards
volcano
wasteful
wholly
woolens
wrapped
wretched
yield
yielded
week-day (week day)

## List 8.

aboard
abolish
abroad
abusive
accuracy
aching
acre
adapted
additional
adequate
adjourn
adieu
admirable
admiring
adventure
agriculture
alcoholic
alien
allege
amateur
amiable
analyze
anarchy
anchored

anguish
ankle
apostrophe
apprentice
architect
artery
asleep
assault
assigned
assume
assuming
asylum
attorney
auspicious
author
authority
autobiography
baffle
banana
barbarism
basement
bathe
bath
bathing

beckoned
benevolent
besiege
bicycle
biography
biscuit
bouillon
boycott
brandy
bumps
cabinet
cactus
capillary
cartridge
captivity
cathedral
chandelier
chaperon
charity
chemical
chemistry
cholera
chord
circuit

cite
citrus
comb
commendable
compass
complicate
conceive
contagious
coroner
counsel
countenance
court
coyote
creamery
created
crew
cultivator
currency
cylinder
defenseless
dissuade
delicacy
despotism
destiny

## LIST 8—Continued.

diagram
dilemma
disciple
discipline
display
donkey
dried
duly
duplicate
dynamite
editorial
elasticity
emerald
encyclopedia
enrolment
epoch
equalize
equity
erosion
essay
esteem
eucalyptus
eulogy
execute
exhaust
exposition
externally
fabulous
faculty
factory
fatten
faucet
faultless
federal
felony
ferment
fertility
foreigner
frail
friction
fumigate
fundamental
gaiety (or gayety)
galore
ghostly
glisten
gloat
glorious
goose
graceful
gracefully
grandeur
grappled
grease
guard
gymnastic
habitual
hammer
halve
handled
harvested
haughtier
haunted
healed
heiress
heirs
hereby
hinges
homicide
hopping
horizon
horizontal
horticulture
humane
humiliate
hygiene
hymn
hypocrit (e)
hysterical
Illinois
image
imbecile
imbued
immigrant
immigration
immodest
immovable
impair
impelled
impel
inaugurate
incentive
indicative
indict
indictment
indigestion
indulged
infantile
infinitive
inherit
initial
innocent
insolvent
instill
insurgent
integrity
intellect
intended
invasion
invented
irresistible
irritate
irrigate
jailer
jollification
jostled
journal
judicial
junction
junior
jury
justify
juvenile
kindergarten
kindled
kindliness
knitting
languid
lamb
lawfully
leaking
lecture
legally
leggings
legible
legislator
liability
leaf
light
lightning
limitation
liquid
luxuriant
macaroni
machinist
magical
magistrate
magnanimous
magnificence
magnify
magnified
majesty
malice
maneuver
manifest
manned
massive
matrimony
mattress
maximum
memorable
menace
mental
menagerie
minor
miracle
mirage
misconstrue
misdemeanor
misused
mixture
momentous
monopolize
monopoly
morgue
mortally
monsoon
mortgage
mouthful
movable
mule
mumbling
muscular
muster
mustache
mutilate
mutually
nameless
namely
napping
narrowly
needful

### LIST 8.—Continued.

needy
neglectful
noiseless
nominal
notable
notary
nourish
nugget
opaque
oppression
oppressing
orderly
oxygen
obliterate
observation
occupant
oceanic
Pacific
paltry
pamphlet
parallel
participant
participle
particle
pasture
pathetic
peasants
pecuniary
peculiarly
penetrate
perennial
perilous
permitting
perpetual
phenomenon
philosopher
picturesque
pioneer
plantation
plaque
plausible
plumb
precedent
precipitate
precise
precocious
presidential
presumption
pretentious
prevalence
primitive
privation
profession
promissory
prophet
proprietor
prosperity
psalm
purity
pure
quarantine
queer
query
quorum
radiant
radius
rage
random
ransom
raptures
rebellion
recipient
reclining
reconciliation
refrain
rehearse
rehearsal
relapse
relinquish
reminiscence
requisite
resistance
restrain
reticent
revel
revengeful
revenue
reverence
rhubarb
righteous
righteously
rivalry
robust
routine
ruffian
rugged
sacrifice
saliva
sanguine
sanitarium
sarcasm
science
scientific
scornfully
scrambling
scuffle
seasonable
sculptor
secrecy
secrete
sediment
seminary
sensitive
sergeant
serial
series
service
session
setting
settlement
shallow
sheepish
sheer
shepherd
sheriff
shined
shoeing
shrugged
siege
signal
sirloin
skeleton
sketch
sketches
slacken
slaughter
slight
slough
slyly
smattering
soar
soberly
social
solemn
solicit
solitude
solitary
soprano
sorely
sought
soul
soup
sovereign
spangled
spectacle
speechless
sphere
sphinx
spinach
spiritual
spiteful
spoiled
spoonful
spreading
sprinkling
statesman
statement
stationed
statue
steering
sterilize
stimulate
strolling
style
sublimity
subordinate
subsequent
substance
substitute
suffrage
suicide
sulphur
sulphurous
supernaturally
supervise
supreme
surveyor
survival
swindle
synagogue
syndicate
tableau

## LIST 8—Continued.

tablet
tabooed
tackle
tact
talented
talkative
tamper
tangle
tantalizing
tastefully
taxation
teachable
temperance
temperate
tempest
terminate
terrace
terror
testimony
thence
tidings
tidy
tipping
toiling
tonsils
topped
tortured
traceable
tracing
trading

tragedy
tragically
traitor
transaction
transferable
transient
travels
traveler
treason
treasury
treaty
trousers
trousseau
trusty
tulle
twilight
tyrannical
unacquainted
unanimous
uncivilized
uncouth
underneath
undesirable
unfit
ungrateful
unhappy
unharnessed
unimaginable
universe

unruly
urchin
usable
utility
utterance
vacuum
vagrant
vagrants
vaguely
valid
variation
varied
velocity
ventilation
venerable
venison
vertebra
vertical
vicious
victuals
viewed
vigorous
vindictive
violation
violence
virtue
visible
vision
vitality

vivacious
vocabulary
volume
voluntary
volunteer
volunteers
vulgar
vulnerable
vying
waddled
warrior
wayward
weapon
wearisome
wharves
whistle
wield
wilful (1)
winning
wisdom
wisely
wouldn't
wrecked
wrestle
yacht
Yankee
yelling
yields
youthful

## List 8A.

adopt
advantage
advice
affair
aid
astonish
avenue
bacon
badge
baggage
balloon
banquet
baron
bless
breeze
burglar

calico
camera
canyon
carriage
cease
cement
chilly
circle
clerk
cloak
coach
comfort
complexioned
compare
comparison
consisting

continue
contributed
corpse
cottage
council
county
crawl
crystal
current
curve
damp
dealt
dealer
debtor
decent
declare

defence
delighted
delightful
democratic
depart
deposit
describe
deserving
design
desert
detect
development
disagreeable
disappointment
disaster
discover

### LIST 8A—Continued.

discuss
disgrace
dismissed
distant
ditch
divide
dodge
dough
druggist
educate
electric
emphasize
employer
enemy
enforce
engine
enjoy
entertainment
enterprise
enthusiastic
examine
examining
excite
exciting
exercises
facing
fact
faithfully
festival
ferry
fleeing
flesh
forth
fortunate
forward
foul
furnished
furniture
future
grasp
grate
gravel
guide
gulf
gymnasium
gypsy
habit
haste
haul
heed
helpful
hello
herded
hired
hoarse
hollowed
human
humming
hugged
ice-cream
icicle
idle
ignorant
illustration
imagine
improve
increasing
insect
introduction
juice
kingdom
kissed
kneel
knee
knelt
knot
laughter
lean
maiden
marvelous
memory
mere
merrily
metal
midst
mighty
motorcycle
mourning
mutual
nature
notion
nourishment
oat
oath
object
occasionally
operate
order
origin
owe
pale
palm
parcel
pause
pedal
peddle
poppies
porch
possess
possession
principal

(*b*) **Language.**—The requirements in language usage are covered by practical habits in the usage of simple punctuation, capitalization, use of quotations, apostrophes, etc. The test will consist of ability to write paragraphs from dictation involving these elements, as stated, to correct errors in paragraphs and to compose a page or so upon some given topic with freedom from errors not only in the elements stated but also free from common awkward or ungrammatical constructions. Students may be assisted in the preparation for language by using Bulletin No. 9 of the San Francisco State Normal bulletin series, listed upon the cover pages.

(1) Students entering the Normal School will be expected to show a ready and thorough mastery of the following language elements and to the extent indicated:

The use of the period and question mark.

The writing of dates (with and without the year).

The use of the comma in series and with city and state (San Francisco, California).

The various ways of writing the possessive form of nouns.

The use of the capital in words denoting titles of relationship (aunt, uncle, cousin), and titles of office (captain, general, etc.).

The writing of quotations: simple, divided, two sentence type, and other types commonly found.

The writing of expressions of time: o'clock, a. m. and p. m., half-past, etc.

The use of the capital in expressions denoting direction or section of our country (east, west, East, West, etc.).

The use of the possessive in expressions denoting joint ownership and those denoting separate ownership (Smith and Jones' store; Helen's and Susie's mothers).

The use of the comma: in direct address, with Yes and No, with words like however and indeed, with words in apposition.

The writing of expressions denoting number: when to use words and when to use figures; expressions involving dollars and cents.

The use of the capital in words denoting political parties and forms of government: Republican, republican, democracy, Democratic.

The use of the comparative and the superlative.

The proper use and distinction between lie and lay; rise and raise; sit and set; effect and affect. (See, also, the list of pairs of words.)

The use of the capital in these words as well as the spelling of the words: days of the week, months, holidays, special days (Valentine's day, Hallowe'en, etc.), seasons, directions, towns and cities (the names commonly used by the children in writing—about twenty-five, mainly in California), nationalities, words denoting number, books, papers, magazines, railroads, steamers, religious denominations, universities and colleges, wars, schools, parks, abbreviations for states.

The writing of these abbreviations: Mr., Mrs., Miss, Dr.

The writing of contractions.

The plurals of the following words: baby, lady, alley, valley, ox, sheep, mouse, goose, deer, wharf, thief, roof.

The correct use of and distinction between the following homonyms: all ready—already; all right; a long—along; are— our—; among—between; by—buy; blew—blue; course—coarse; deer—dear; for—four; fair—fare; flour—flower; great—grate; hear—here; hour—our; hole—whole; in—into; knew—new; know—no; lead—led; meat—meet; Maine—mane—main; pain—pane; past—passed; pear—pair; piece—peace; principal—principle; read—red; right—write; road—rode; rose—rows; seem—seam; sail—sale; sew—so—sow; shone—shown; site—sight; strait—straight; some—sum; tale—tail; to—too—two; then—than; there—their; through—threw; way—weigh; weak—week.

(2) There must be ready ability to correct all language errors in compositions, as follows:

GRANDPAS BOYHOOD.

> Alice and Jessies home on a large farm near Santa Rosa, Cal., was Grandpa Whites home to. The little girls grandparents were to old too live alone so Mr and Mrs White cared fore them. The dear old couple loved there grand-children very much.
>
> After school the girls' liked to harness their pony take a drive to the woods gather wild flowers. And visit kind general Mason on the

way home. They had to cross the Southern Pacific tracks near the bridge. And they always stopped to see if the train was near. Then they drove on passed the Presbyterian church and the Lake school.

When it was about six o'clock. They would start back to be home in time for dinner. The childrens' parents watched them. As they drove up the path. They liked to see thier to daughters smiling faces.

Every Sunday afternoon they all gathered around Grandpa. He would tell storys. Which the children were always glad to here. Sometimes he would take them to Lakeside park.

"I am going to tell a story about my boyhood today, said Grandpa one Sunday. Alice clapped her hands. Did it happen along time ago she asked it happened on December 25, 1861. It was the Christmas day and I was living in the east. "The Civil war had just begun, "said grandpa."

(3) There must be ready ability to fill in the necessary punctuation, capitalization, and other language forms in the following:

1. the admirals wife will arrive at san diego california on july 7th at four oclock said harry and mabels aunt kate
2. have we just a few hours time in which to buy the girls and boys hats asked her uncle
3. the doctor asked admiral parkers cousin was the train wrecked south of harpers bridge
4. the delay of a few moments caused marys and jessies mothers to miss the quarter past four boat
5. that boys teacher asked has james and freds mother moved with them to the far west or do they still live in the little town north of here
6. willards aunt mary said that she wanted sandwiches and olives cake and ice cream grapes pears and candy for the boys and girls party
7. those two womens friends organized the men and ladies meeting which voted to abolish the taking of deers lives as one of huntsmens sports
8. hundreds of mens womens and childrens lives were lost when the south bound liner went down two miles east of the lighthouse
9. the asiatic countries resources have not been as well developed as those of the united states
10. what is this citys population he asked as my friend turned to go
11. ladies and childrens hats are now being displayed at williams and packers new store
12. he said that the winds direction would soon change from east to north and that then the entire west would be in the storms grip
13. during the childrens stay in sacramento california they spent two happy days at the judges ranch but they did not have time to go to grandmas
14. johns cousin objected to doing two days work for one days pay remarked the two boys employer
15. mrs brown childrens dog is a collie
16. my men said the brave captain we must defend our countrys honor

17. john come here i wish you to help me said his mother

18. jack the carpenters son will be here to finish the work at 8 30 a m

19. two thousand dollars remarked the salesman is the price of that automobile

20. his ideas are very democratic

21. he belonged to the republican party but however his principles were democratic

(4) **Grammar.**—Students will be examined upon their ability to correct ungrammatical constructions and improper usages found among types represented by the sentences given. Some of the sentences are correct in form, and in these instances it will be sufficient to state that the sentence is correct. In a few cases the errors are not strict violations of grammatical principles, but in the use of wrong words. In these cases it will be sufficient to point out the improprieties and rewrite the sentences in proper form. In the majority of sentences, the error is a violation of a certain established grammatical principle. In these cases no credit will be given unless the violation of the specific grammatical principle involved is clearly and definitely stated and the correction is justified by proper citation of grammatical principles. For example, the sentence "I hain't going" is incorrect, not because any grammatical principle has been violated, but simply because "hain't" is not a recognized English word. "Mary and Jane is going" is a sentence, however, which violates a grammatical principle. The sentence is incorrect because the predicate "is going" is singular in number and does not agree with the plural subject Mary and Jane. Therefore, the predicate should be changed to the plural form "are going," and the sentence should be "Mary and Jane are going." Students may find some assistance in preparation by the use of Bulletin No. 15, listed upon the cover pages.

1. Every one pass to their places at the board. 2. That position is more preferable. 3. If a person is caught taking flowers they are arrested. 4. Don't no one so much as whisper. 5. Every one that was late this morning raise their hands. 6. I kind of forgot. 7. Every one knows his lesson. 8. I never saw any one so well pleased as him. 9. The coat looks nicely upon her. 10. He should of done more than me. 11. The dress now fits her well. 12. He said he knew it was her right of. 13. I want everybody to take their seats. 14. I like those kind best. 15. Bring this letter to your father. 16. He ought to come quicker. 17. Every one of you were talking without permission. 18. I'm feeling very poorly nowadays. 19. I thought there was a whole lot more of them. 20. Every one may now pass to his seat. 21. Leave go, I say. 22. A noun clause is when clauses are used as nouns. 23. Whom do you think came to-day. 24. Every one of them has a different idear of what they sawr. 25. He hadn't ought to have it so soon. 26. The country is always more healthier than the city. 27. The book was lying right here only a moment ago. 28. Every one of you is forgetting to use his blotter. 29. He ought of been here earlier than me. 30. Who did you ask? 31. Choose between them and us. 32. All of us girls went to the theater together. 33. I took it to be her. 34. Who does them books belong to?

35. Let every one take care of theirselves. 36. Us girls are going now.
37. Is it me you're talking to? 38. She came to hear us girls sing.
39. Every one who has finished may raise his hand. 40. Who did you say
called while I was out? 41. They told all we girls to go in. 42. Nobody
can leave their seats without permission. 43. Hand your papers to me or
her. 44. Who did you tell that story to? 45. Every one open their book
to page 40. 46. There is only two years between him and me. 47. Who
did you get that there book from? 48. This is strictly between you and
me. 49. I thought it was her who done it. 50. Divide it between yourself
and him. 51. Who did you say came for her? 52. Who do you
think those books belong to? 53. Where is your book at? 54. It was me
you spoke to last evening. 55. I want to see you real bad. 56. He writes
good. 57. John does good work. 58. That was done splendid. 59. Go
to the board and drawr me a horse as nice as you know how. 60. Write
slow. 61. That there little girl must work quick. 62. Oh, you did pretty
fair. 63. Pass to the board quite. 64. He don't do that very good.
65. This paper don't look any too well. 66. You worked that there
example correct. 67. Do it as good as you can. 68. It's awful cold
to-day. 69. You didn't sing good to-day but you done fine yesterday.
70. Turn around quick. 71. He liked it awfully much. 72. I feel very
badly about the whole thing. 73. The hat looks well upon her. 74. Talk
slow. 75. He is real handsome if you look at him right. 76. This is
awful good pie. 77. The wind blowed my hat off of my head. 78. Jimmy
you set there quiet until I come back. 79. I will learn you that song if
you want. 80. He don't know if he wants to learn. 81. He has broke
the pencil what the teacher gave him. 82. The wind blowed fierce.
83. He has hid the ball behind the chair. 84. Has the bell rang since you
awoke? 85. Are you stopping with friends? 86. He had come up the
stairs very quiet. 87. John eat it all up. 88. I never sat the plates upon
the table a tall. 89. Them lamps are not lit easy. 90. Our visitor hasn't
showed up yet. 91. I knowed that along before you did. 92. We begun
the games at 8 o'clock prompt. 93. Jimmy throwed the ball clear over
the fence entirely. 94. John has broke the window careless. 95. William
drunk up his milk already. 96. I will learn him not to do that fool trick
again. 97. Mary has went home too quick. 98. She come to school too
early. 99. I love to see my class do good. 100. I loaned my pencil to
you once before already. 101. I seen the boys do it. 102. Learn him to
do it correctly. 103. I'm goin' to lay down now. 104. Set right around
in your seat. 105. Let me have the loan of yer knife. 106. Give me the
lend of a pencil. 107. He laid down all yesterday afternoon. 108. Lay
down them pencils. 109. Lie down, Fido. 110. Every pen should be
laying on the desk. 111. There the book lies upon the table right before
his eyes. 112. The book is lying on the floor. 113. Try and come early.
114. He sais he was going in and lie down. 115. Look at what he went
and done. 116. Try and write muscular movement nice. 117. You
hadn't ought to go to-night. 118. You oughter have been punished
severe. 119. Let me alone. 120. No, I can't leave you stay in this room.
121. Can I go there? 122. Yes you can change your seat if you move

quite. 123. You use to do better than that. 124. Ain't you goin' to get to work? 125. You can do as well as her. 126. I don't want you speakin' without permission. 127. Don't Johnnie nor you try that again. 128. Willie and Frank don't know how to sing. 129. Why don't he finish his work quick? 130. You can take this slip to Room B. 131. It don't make no particular difference 132. She dont study good. 133. Three and one makes four. 134. You can leave the room now. 135. There is two papers missing. 136. Where were you all the morning? 137. Never use a preposition to end a sentence with. 138. Write clear acrost your paper. 139. Whom did you say he is? 140. That don't make any difference. 141. Where was he yesterday forenoon? 142. I said you wasn't to go out again. 143. Neither of you two boys is going to graduate. 144. Can you do those kind of examples? 145. I can't think of absolutely nothing. 146. How many haven't no pens? 147. I went a little ways down the road. 148. If she don't mind I'll go home soon. 149. Keep off of the grass. 150. There is no pencils left on the desk. 151. You wasn't here yesterday. 152. Neither James nor John has did their work. 153. Where did you put your papers to? 154. It don't hurt a bit. 155. Oh, do you like those kind of nuts? 156. That is all the further we got yesterday. 157. An adjective is when a word modifies a nown. 158. It looks like it will rain. 159. You can do as good as her. 160. If I was you I'd try and speak correct. 161. I don't know if I can go. 162. Give me them papers right now. 163. I want the book what I gave you. 164. Him that book belongs to ain't here no more. 165. Shut that book right of. 166. I see some one talking and they're goin' to get into trouble. 167. Youse children must not do that. 168. She don't know no better. 169. Didn't he do nice work? 170. Where are you going to next? 171. Who did you give the pencil to? 172. He don't have those kind of books in his store. 173. I haven't got no paper for you left. 174. An adverb is where a word modifies a verb, adjective or other adverb. 175. Supposin' Columbus had been shipwrecked what would of been the affect upon civilization? 176. I wish the book what I gave you. 177. Will youse people please be seated. 178. Lemme see your book. 179. Let me go. 180. I like to drawr. 181. Putcher hands down. 182. Sure, I will. 183. Ain't she awfully cute. 184. Jest a minute. 185. There aint no such thing. 186. Everyone has his lessons written correctly. 187. That ain't the right way to lay down your pens. 188. It don't matter what she said. 189. Where did you get it at? 190. I like these kind of candies awfully better. 191. Youse girls better come in before it rains. 192. Leave him alone. 193. Whatcher name? 194. Doncha do that again. 195. Sure, I'm goin'. 196. Ain't you finished yet. 197. Let everybody stop their talking. 198. Leave him do it. 199. It hadn't ought to be that way. 200. You ought to of done what was right. 201. He said he was going out and sweep the steps. 202. She looks like me. 203. If I was fat and forty I'd not wear plumes. 204. He don't want you to do that. 205. Jest look at them dirty hands. 206. Will you come with Alice and I? 207. Can Alice and I go? 208. We walked too fast for him and her. 209. Who's there? Its me. 210. Can it be them. 211. It was not they who did it.

## COURSES OF STUDY AND PUPILS' EXERCISE BOOKS—Continued.

No. 11.—A Course of Study in Formal Arithmetic and Teachers' Handbook. By David Rhys Jones.

This Bulletin is published in various parts as follows:

Part I. Teachers' Handbook and exercises for integers; 109 pages, paper bound. *Price by mail, postpaid, 30 cents. In lots of 25 or more, freight or expressage paid by purchaser, 25 cents per copy.*

Part II. Teachers' Handbook and exercises for common fractions, decimals, percentage, denominate numbers, and mensuration; 84 pages, paper bound. *Price by mail, postpaid, 30 cents. In lots of 25 or more, freight or expressage paid by purchaser, 25 cents per copy.*

Drill Exercise Books Nos. 1, 2, 3, and 4; paper. *Price by mail, postpaid, 10 cents each. In lots of 25 or more, freight or expressage paid by purchaser, 8 cents per copy.* These drill books are intended to be used exclusively by pupils, and may be purchased in bulk for classes; they contain merely the exercises from the Bulletin as follows: No. 1, Addition and Subtraction (22 pp.); No. 2, Multiplication and Division (23 pp.); No. 3, Common Fractions (15 pp.); No. 4, Decimals, Percentage, Denominate Numbers and Mensuration (24 pp.); answers to these exercises are found in the Handbook.

No. 12.—Review Courses of American History by means of Composition Topics, and Teachers' Handbook to the use of the California State Series Texts. By P. F. Valentine.

Part I. Teachers' edition containing introduction and directions for use of the composition method, the pupils' topics of the primary text, the pupils' topics of the advanced text, a paragraph directory to the text, and a cumulative fact review of the advanced text; 73 pages. *Price, postpaid, 25 cents. In lots of 25 or more, freight or expressage paid by purchaser, 20 cents per copy.*

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No. 13.—A Course of Study in Applied Problems in Arithmetic for Supplementary Use. By Mary A. Ward.

Teachers' Edition (unpublished).

Pupils' Arithmetical Exercise Book No. 1 (problems involving integers, fractions and denominate numbers) unpublished.

Pupils' Arithmetic Exercise Book No. 2; 39 pages. (Problems in percentage types.) *Price, by mail, postage prepaid, 15 cents; in lots of 25 or more, freight or express charges paid by purchaser, 10 cents.*

No. 14.—A Course of Study in the Teaching of Composition, Language and Spelling; paper bound. By Effie B. McFadden, assisted by Ethel G. Smith. Teachers' edition for first three years. *Price, postpaid, 25 cents. In lots of 25 or more, freight or expressage paid by purchaser, 20 cents per copy.*

From the teachers' edition are reprinted the Pupils' Exercise Books, into which pupils may write with ink. The books contain the exercises for pupils but omit the directions to teachers. A large portion is printed matter, saving the labor and time of the teacher in copying lessons upon the board, and saving the pupils also a great amount of unnecessary labor. By the use of these exercise books, classes will make from two to three times the progress they make under the usual text-book conditions.

Pupils' Exercise Book No. 1. *Price, postpaid, 10 cents; in lots of 25 or more, freight or express charges paid by purchaser, 7½ cents per copy.*

Pupils' Exercise Book No. 2. *Price, postpaid, 10 cents; in lots of 25 or more, freight or expressage paid by purchaser, 7½ cents per copy.*

No. 15.—A Simplified Course of Study in the Teaching of Grammar; teachers' edition, paper bound, 187 pages. By Frederic Burk, Effie B. McFadden and Irving Brazier. *Price, postpaid, 40 cents.* The same kind of pupils' exercise books accompanies this bulletin as those described under No. 14.

Pupils' Exercise Book No. 1; 68 pages, comprising Exercises 1 to 35. *Price, postpaid, 10 cents; in lots of 25 or more, freight or expressage paid by purchaser, 7½ cents per copy.*

Pupils' Exercise Book No. 2; 64 pages, comprising Exercises 36 to 85. *Price, postpaid, 10 cents; in lots of 25 or more, freight or expressage paid by purchaser, 7½ cents per copy.*

Pupils' Exercise Book No. 3; 48 pages, comprising Exercises 86 to 115. *Price, postpaid, 10 cents; in lots of 25 or more, freight or expressage paid by purchaser, 7½ cents per copy.*

Pupils' Exercise Book No. 4; 64 pages, comprising Exercises 116 to 150. *Price, postpaid, 10 cents; in lots of 25 or more, freight or expressage paid by purchaser, 7½ cents per copy.*

No. 16.—A Course of Study in Phonics. By Corinne H. Johnstone and Frederic Burk. Teachers' edition, Part I, 90 pages. *Price, postpaid, 20 cents.*

Pupils' Phonic Exercise Book No. 1 (containing exercises reprinted from teachers' edition). *Price, postpaid, 10 cents; in lots of 25 or more, freight or expressage paid by purchaser, 7½ cents.*

No. 17.—A Composition Course in American Government and Pupils' Handbook to the State Series Text (Dunn's Community and Citizen) with Supplement containing revised or additional paragraphs upon conservation, some California laws, Interstate Commerce Commission, California's compulsory education, direct election of United States senators, direct primary, township and county, the commission form of city government, the initiative, referendum and recall, the cabinet; paper bound, about 40 pages. By P. F. Valentine. *Price, postpaid, 15 cents; in lots of 25 or more, expressage or freight paid by purchaser, 10 cents per copy.*

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MONOGRAPH SERIES—B

## SECTION II

# GENERAL HISTORY

Compiled by
P. F. VALENTINE

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### THE ANCIENT EAST.

**History.**—No chronological or connected knowledge of the history of the ancient East is required. The student should know the approximate date of the old Babylonian civilization, and should also know what nations represented, at one time or another, the highest development of Eastern civilization—specifically, Babylonia, Assyria and Persia. (The Hebrews, who are coeval, are taken up separately in this work.) The student should be able to discuss, with a few specific illustrations, the state of civilization of these ancient peoples, considering irrigation and other engineering works, architecture and art, splendor of cities, and characteristic religious and social customs. The spirit of conquest as shown by the Assyrians and Babylonians, especially as affecting the Hebrews, should be taken account of. In a very general way, something should be known of the overrun of the Eastern countries successively by Alexander, the Romans and the Turks. Consider the final reduction under Turkish rule.

**Terms.**—Arabic numerals, cuneiform writing, origin of the alphabet, the hanging gardens.

### EGYPT.

**History.**—A general conception of the date, character and extent of the ancient Egyptian civilization; what we mean by the Pharaohs; approximate date, and theories concerning the purpose, means of erecting and uses of the pyramids and sphinx; Biblical stories of Joseph, the Israelites in Egypt, Moses, and the flight; the conquest of Egypt by Alexander, and the burning of the Alexandrian library; what we mean by the Ptolemies; something should be known of Egypt's tributary relation to other nations, down to the present time.

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**Institutions and Customs.**—Something of the character and development of ancient Egyptian sculpture, painting, glass and other art works; astronomy and other sciences; embalming of the dead; the gods Isis and Osiris; the worship of animals.

**Terms:** Books of the Dead, hieroglyphics, inundation of the Nile, obelisks, papyrus.

**Suggested Literature.**—Shelley, *To the Nile* and *Ozymandias*. Shakespeare, *Antony and Cleopatra.*

## THE HEBREWS.

**History.**—Tribal life under the patriarchs and early pastoral life and customs; approximate date of the early prophets; the Exile in Egypt and the return; Israel and Judah; character of inter-tribal wars and wars with the Assyrians and Babylonians; the Babylonian Captivity; the Roman domination; dispersion throughout the world.

**Biblical History and Stories.**—Abraham and Isaac, Joseph, Moses, Samuel, Saul, David, Solomon. (See also under Literature.)

**Institutions and Customs.**—Abhorrence of idol worship, wonderful idealism, persistence of the purity of the race, the Synagogue, the Passover, the Messianic hope.

**Terms.**—The Temple, the Ark of the Covenant, the Flight from Egypt.

## INDIA.

**History.**—Antiquity; characteristics of early Buddhism; conquest by England; English system of government; intellectualism; suggestions of latent revolt; Mohammedanism in India.

**Brahminism.**—The caste system; transmigration of souls; idol worship; temples; the Sacred River.

**Stories.**—The story of Buddha, as told in Arnold's *Light of Asia.*

**Terms.**—Sepoy rebellion, Veda, Yoga, Viceroy.

**Suggested Literature.**—Kipling, *Departmental Ditties and Barrackroom Ballads; Kim; Soldiers Three.*

## GREECE.

**History.**—Some descriptive impression of tribal life in prehistoric Greece. Emergence, in later prehistoric times, of city states. The legendary, or Homeric, period, and approximate date. The student should possess a knowledge of the Trojan war, together with the ability to narrate the best known dramatic stories connected with the same. How Homer told his stories.

Athenian life: education, attitude toward literature and art, government, luxuries and diversions. Some of the austerities of Spartan life and training, such as military discipline, exposure of infants, etc.

Alexander the Great: his nationality, story of his education, and reason for "greatness." The Persian invasion: Marathon, Thermopylæ, Salamis. The Athenian democracy, and why called a pure democracy.

The Age of Pericles: approximate date; characteristics of art, architecture, drama and philosophy; the Parthenon, why so famous, and name of most noteworthy sculptor. The reduction of Greece to Roman rule, and later to Turkish rule. The Greek war of liberation, with the part played by Byron and other enthusiasts. Greece's part in the recent Balkan war and the re-acquisition of famous classical places in the Aegean.

**Institutions.**—Olympic games, the theater, architecture and sculpture, and the Greek religion (see Literature).

**Philosophies.**—The student should be able to explain, simply and briefly, the significant principle of each of the following: cynicism, epicureanism, stoicism, sophistry.

## ROME.

**History.**—Some legendary anecdotes, such as Romulus and Remus, Horatius, the Tarquins and the basis of the Roman hatred of the name king; understanding of the elements of Roman government under the democracy—consuls, tribunes, the senate, the popular assembly; Caesar's conquests in Gaul, invasion of Britain, return to Rome, era of power, and assassination, together with some knowledge of the forces that led to his downfall; general extent of Roman dominion under the emperors; persecutions of the primitive Christian church; recognition and adoption of Christianity by Constantine; corrupting political and social forces that worked for downfall; incursions of barbarians and downfall; heritage left by Rome—political organization, Justinian code, literature, architectural ruins, civilized customs; European nations that grew from the wreckage of the Roman Empire.

**Stories.**—Hannibal's oath against Rome, his invasion, and the destruction of Carthage; destruction of Rome by fire in Nero's reign; the Consul Brutus and his son; Cincinnatus; Antony and Cleopatra; destruction of Pompeii and Herculaneum, with some account of discoveries made through excavations.

**Institutions and Customs.**—Ancestor worship, combats of the arena, "farming the taxes," the slave system, the Roman triumph, and Roman architecture, aqueducts, roads, houses, baths, theaters, etc.

**Terms.**—"Veni, vidi, vici"; Vestals, catacombs, dictator, Western Empire, Eastern Empire.

**Suggested Literature.**—Shakespeare: *Julius Caesar; Coriolanus.* Bulwer: *Last days of Pompeii.* Wallace: *Ben Hur.* Macaulay: *Horatius.* Byron: *Childe Harold,* canto II, stanzas 85–91; canto IV, stanzas 140–145.

## ITALY.

**History.**—Condition of Italy after the fall of Rome as part of Holy Roman Empire; Italy during the Renaissance: city states, art, literature, religion and general culture. Austria in Italy; vandalism of Napoleon;

the unification of Italy; Garibaldi; denial of temporal authority to papacy; present conditions of peasants and government.

**Stories.**—Episodes of the war for freedom.

**Terms.**—Borgia, Doge, Camorra, Mafia, Saint Peter's.

## SPAIN.

**History.**—Spain as a Roman province; condition after fall of Rome; the Moors; Isabella and Ferdinand; Spain in the New World; loss of American colonies; results of Spanish-American war; form of government.

**Stories.**—The Cid, Don Quixote.

## PORTUGAL.

**History.**—Racial relationship to Spanish peoples; early activities in exploration and colonization; Lisbon earthquake and fire; character of recent revolution, and kind of government set up.

## ENGLAND.

**History.**—Characteristics of original Britons, and the Gaelic tribes in England, Scotland, Ireland and Wales; the Druids; what the Romans gave England; the effects of the Angles and Saxons; contributions of Alfred the Great; how William the Conqueror and the Battle of Hastings changed racial traits, language and customs.

The story of the Magna Charta and the origin of Parliament; story of Richard the Lion Hearted and the crusades; knights, tournaments, tenants.

Henry VIII, his wives and the quarrel with the Pope; the Church of England; Elizabeth and Mary Queen of Scots; Sir Francis Drake and the English Sea-Dogs; the Battle of the Armada; the characteristics of the Age of Elizabeth; religious struggles; Shakespeare and the drama; England on the sea; the revival of learning in England; the growth of trade and colonial expansion; the Puritan revolution; Cromwell and Charles I; William and Mary.

Edmund Burke; George III and the American Revolution; England and Napoleon; Wellington and Waterloo; Nelson and Trafalgar; Queen Victoria; the Eastern Question; Darwin and Darwinism; the Crimean War; Gladstone and home-rule for Ireland; Lloyd George and reforms for the benefit of the aged and for working classes; England in the great European war.

English colonies in the New World; the loss of the American Colonies; the East India Company and the conquest of India; the Suez Canal, Australia, British Africa, British imperial policy; "The sun never sets on English soil."

**Stories.**—Reasonable familiarity with the details of the following dramatic stories and events:

Deeds of William Wallace; the Battle of Hastings; Mary Queen of Scots; Walter Raleigh and Elizabeth; James Watt and the steam engine.

**Terms and Names.**—The Cavaliers, the Roundheads, the Home Rule bill, the Liberal party, the Wars of the Roses, absentee landlordism, Conservatives, Guy Fawkes Day.

**Institutions.**—Parliament; Cabinet; Oxford and Cambridge; House of Commons; House of Lords; Premier; party government; Church of England; Bank of England; Tenants; Rugby; unwritten constitution.

## FRANCE.

**History.**—France as the home of the Gallic tribes; Cæsar's conquests there and establishment of Roman dominion; Charlemagne; France in the middle ages—feudal life and customs; the Huguenot troubles; social customs and extravagances of the court under Louis XIV and XV; poverty of the people prior to the Revolution; fall of the Bastile; execution of Louis XVI and Marie Antoinette; riots, killings and other extreme practices and ideals of the Revolution; Napoleon's rise to power, and Moscow, Elba, Waterloo, St. Helena; establishment of the Republic; Franco-Prussian war and Alsace-Lorraine question; France in the great European war.

**Stories.**—Joan of Arc, fall of the Bastile, Charlotte Corday, imprisonment and death of Marie Antoinette; dramatic episodes in the life of Napoleon.

**Institutions.**—Chamber of Deputies, French Academy, Legion of Honor, Louvre, Notre Dame, Syndicalism.

**Suggested Literature.**—Dumas: *Three Muskeeters.* Dickens: *Tale of Two Cities.* Hugo: *Les Miserables, 'Ninety Three.* Byron: *Waterloo.* Robert G. Ingersoll: *Oration at the Tomb of Napoleon.*

## BELGIUM.

**History.**—Why called the "football of Europe" and the "cockpit of Europe"; kind of government; Belgium in the European war—violation of her neutrality, siege of Liege, burning of Louvain, fall of Antwerp, battle of Flanders, stubborn bravery of army, sufferings of refugees.

## SCANDINAVIA.

(Norway, Sweden and Denmark.)

**History.**—The Danes in Britain; raids of the Northmen; discovery of America; present governments; husbandry, industry and other indications of advanced state of people; the Schleswig-Holstein affair.

**Terms.**—Asgard, Balder, Loki, Odin, Saga.

**Stories.**—The deeds of Thor; the Death of Balder.

## HOLLAND.

(The Netherlands.)

**History.**—Early commercial importance; oppression by Spain; liberal government and toleration; present political and commercial position; form of government.

**Customs.**—Be able to illustrate the proverbial Dutch thrift, husbandry, and commercial instinct.

**Stories.**—The siege of Leyden and other episodes in the war against Spanish aggression.

## SWITZERLAND.

**History.**—Ancient spirit of civic liberty among the Swiss, as illustrated by the legends of Arnold of Winkelried and William Tell; Switzerland as the seat of early radical religious reform; as an example of loose confederation and democratic government; cantons.

## GERMANY.

**History.**—Teutonic tribal life; the Germans in conflict with the Roman empire; creation of principalities after the fall of Rome; characteristics of feudal life; robber barons; Martin Luther and origin of Protestantism; Frederick the Great and the development of Germanic militarism; Austro-Prussian war; Franco-Prussian war; Bismarck and the unification of Germany; Germany as the source of great works in philosophy, science, poetry and music; systematic industrial education and marvelous burst of commercial prosperity; strength of socialism; Germany's advance in industrial insurance and other social reforms; Germany in the European war.

**Literature.**—*Nibelungenlied,* Goethe, Schiller.

## AUSTRIA-HUNGARY.

**History.**—Confused condition in middle ages and later; formation of the Dual Monarchy; Austrian encroachment in, and expulsion from, Italy; Austro-Prussian war; assassination of heir apparent and consort by Servian conspirators; Austria's ultimatum to Servia; precipitation of European war.

**Institutions and Customs.**—Culture in music and art, peasant life, folk customs, and old-fashioned farming methods.

## RUSSIA.

**History.**—Early history as home of northern tribes during Roman supremacy; barbarism during middle ages; growth of nationalists under early Romanoffs; origin of Russian Greek church; story of Peter the Great and his industrial reforms; annexation of part of Poland; Russia in the Crimean war; Alexander and the liberation of the serfs; results of the Russo-Japanese war; Russia in the great European war.

**Institutions and Customs.**—Russia as a type of absolute monarchy; nihilism, and the methods of political suppression and oppression; the Siberian exile; limited education of the masses; suppression of peasant class; treatment of the Jews.

**Literature.**—Tolstoi, Turgenev.

## BALKAN COUNTRIES.

**History.**—Slavic origin; Turkish conquest and domination; wars for freedom and reprisals, such as the Bulgarian atrocities; guarantee of semi-independence by European powers; strategic importance of Constantinople, and consequent rivalries; why the Balkans have been called the "buffer states"; racial and economic reasons for Russian and Austrian rivalry with regard to the Balkans; the recent Balkan war, and results as affecting Turkish domination; present extent of Turkish dominion.

## TURKEY.

**History.**—Emergence from wilds of central Asia; capture of Constantinople and conquests of European territory; fervid support and dissemination of Mohammedanism; Greek war for independence; Turkey in the Crimean war; the Armenian massacres and the Bulgarian atrocities; the recent Balkan war, and its results as affecting Turkey in Europe; recent tendencies toward political reform; Turkey in the great European war.

**Customs, etc.**—(See Mohammedanism.)

## SOUTH AFRICA.

**History.**—Early English and Dutch settlements—Cape Colony, Natal, Orange Free State, Transvaal; enterprise of Cecil Rhodes; Boer war of 1899–1902, and heroic resistance of Boers; formation of Union of South Africa; British suzerainty; gold industry; Kimberley diamond mines; Cape to Cairo railroad.

## CHINA.

**History.**—Antiquity of civilization in social and governmental forms; Confucius, his main principle, some illustrations of his philosophy, and his influence on the people; early inventions; building of great wall; the dynasty of the Manchus; types and severity of ancient punishments; resistance to western civilization; the opium war; the Boxer troubles; the war with Japan; establishment of republic, and adoption of western customs and calendar; present political status.

**Institutions.**—Archaic methods of agriculture; education and its relation to government; Christian efforts toward religious and educational enlightenment.

**Terms.**—Open door policy, Joss.

## JAPAN.

**History.**—Marvelous burst of civilization; items and illustrations of this feature in commerce, military power, education and art; Chinese-Japanese and Russian-Japanese wars; dominion in Korea; trouble with California over land question; treaty of alliance with Great Britain; activities in great European war.

**Institutions.**—Buddhism and Shintoism; devotion to Mikado; fatalism and "banzai"; integrity of the ancient nobility.

## CANADA.

**History.**—French explorations and settlements; important French cities founded; activities of early wood-rangers and missionaries; French and Indian war and fall of Quebec; character of development under British control; simple understanding of form of government.

**Stories.**—The expulsion of the Acadians; the capture of Quebec.

**Literature.**—Longfellow: *Evangeline.* Gilbert Parker: *The Right of Way, Pierre of the Plains.*

## AUSTRALIA AND NEW ZEALAND.

Aboriginal bushmen; explorations of Captain Cook; certain notable advanced economic and political reforms in practice.

## MOHAMMEDANISM.

Story of the founder; Koran; conversion by the sword; the Moors; the mosque; Mecca, the pilgrimages; praying with face to east; present extent of the religion.

## NORTH AND SOUTH AMERICA.

Chief North American tribes; customs in peace and war; read any of Cooper's novels for coloring; the Esquimaux of the north; the peaceful tribes of the Pacific; the Aztecs of Mexico (read Lew Wallace's *Fair God* for color and dip into Prescott's *Conquest of Mexico*; the cliff dwellers; the Incas of Peru (see Prescott); the wild tribes of the Amazon; the fierce Patagonians; the rise of the Spanish-American republics of Central and South America.

## RACES.

The races of peoples to whom the following terms are applied, chief geographical distribution, nations composed of them in past or present. and any events of history made important by them as a class: Aryan, Semitic, Sons of Ham, Celtic, Norse, Malay, Norman, Mongols, Tartars, Goths, Franks, Vandals, Slavs, Huns, Finns, Basques, Moors, Angles, Saxons, Teutons, Latin races, Gallic races.

## FORMS OF GOVERMENT.

Essential features of the following forms or theories of government with notable and characteristic illustrations in history, past or present, and places of prevalence:

Democracy, Absolute monarchy, Constitutional monarchy, Socialism. Nihilism, Anarchy, Republic, Tyranny, Imperialism, Feudalism, Serfdom, Oligarchy.

## FAMOUS NAMES.

The essential or characteristic feature, event, office, accomplishment or principle which has made each of the following famous. You should also be able in the case of most of these to give the century in which each lived. In order to understand these terms there must be considerable reading upon each to obtain the setting and coloring. If you have not already read materials presenting these characteristics fully, and with emotional coloring, it will be profitable for you to do so now.

Cicero.
Richard Cœur de Lion.
Xerxes.
Justinian.
Peter the Great.
Louis Napoleon.
Chaucer.
Zoroaster.
Zeppelin.
Father Serra.
Wagner.
Herodotus.
Richelieu.
Mark Antony.
Karl Marx.
Lord Kitchener.
Garibaldi.
Charles Darwin.
Marie Antoinette.
Herbert Spencer.
William II.
Copernicus.
Nero.
Sir Isaac Newton.
Louis XIV.
Pompey.
Phidias.
Sun Yat Sen.
King Leopold.
Aristotle.
Bismarck.
Pasteur.
Galileo.
Robin Hood.
Rembrandt.
Machiavelli.
Robespierre.
Oliver Cromwell.
Marco Polo.
Luther.
Goethe.
Empress Josephine.
Brutus.
Michelangelo.
Peter the Hermit.
Socrates.
Plato.
Horace.
Solon.
Gutenberg.
Hannibal.
Schiller.
Froebel.
Rousseau.
Leonardo da Vinci.
Demosthenes.
Robert Burns.
Poincaire.
Victor Hugo.
Constantine.
Victor Emmanuel.
Raphael.
William the Conqueror.
Madame Curie.
Crœsus.
Robert Bruce.
Herod.
Gladstone.
Cleopatra.
Scipio.
Cheops.
St. Augustine.
Joan of Arc.
Albert of Belgium.
Darius.
Lycurgus
James Watt
Savonarola.
Marcus Aurelius.
John Milton.
Dante.
Dido.
Marconi.
Rameses.
Frederick the Great.

**Familiar Historical Phrases and Terms.**—The feature of significance and historical origin of the following phrases or terms:

Mosaic Law.
Juggernaut.
Patrician.
Plebeian.
The Reformation.
The Ptolemies.
Inquisition.
Triple Entente.
Nirvana.
English Common Law.
Age of Chivalry.
Babylon.
Greek Church.
Forum.
Crimean War.
Triple Alliance.
The Eternal City.
Reign of Terror.
Alexandrian Library.
Trafalgar.
Alhambra.
Islam.
Tories.
Whigs.
Doric.
Ionic.
Tower of London.
City of Seven Hills.
Khedive.
Roman Consul.
Tribune of the People.
Circus Maximus.
Delphic Oracle.
Norman Conquest.
Shintoism.
Syndicalism.
Age of Pericles.
Fall of the Bastile.
Home Rule for Ireland.
Victorian.
The Reformation.
Vatican.
Huguenots.
Pharisees.
The Renaissance.

Toga.
Magna Charta.
"Met His Waterloo."
The "Little Corsican."
"Crossing the Rubicon."
Vikings.
Tsar.
Petrograd.
Divine Right of Kings.
Talmud.
Marseillaise.
Black Hand.
Proletariat.
"Back from Elba."
Marathon.
The Peace Conference.
Colosseum.
The Louvre.
House of Bourbon.
The Parthenon.
Bohemia.
Holy Roman Empire.
Colossus of Rhodes.
Cavaliers.
The Middle Ages.
The Dark Ages.
Taj-Mahal.
Nestor.
Machiavellian.
The Hague Tribunal.
Ostracism.
Sultan.
Czar.
Reichstag.
Valhalla.
House of Hohenzollern.
Spartan Courage.
Elizabethan.
Phœnix.
The Boers.
Iconoclast.
The Tuileries.
The Iron Chancellor.
Draconian.
Spartan.
Bourgeoisie.
Philistine.
Hellas.
The Crusades.
The Guillotin.
Pantheon.
"Diogenes Looking for an Honest Man."
Age of Augustus.
Jesuits.
Damascus.
Temporal Power.
Athenian Democracy.
The Russian Duma.

Be able to tell which of the inventions, conveniences, foods and indulgences, listed below, were in use during the lives of each of the following persons: Pericles, Emperor Augustus Cæsar, Charlemagne, Shakespeare, Washington, Lincoln. List also those not in use until after Lincoln: Telegraph, water piped into dwellings, steel pens, lead pencils, suction pumps, guns, microscopes, kerosene lamps, use of anesthetics in surgery, banks, tomatoes, elevators, tea, coffee, tobacco, wine, cooking stove, furnace heat for dwellings, piano, violin, harp, typewriter, canned foods, talking machine, sewing machine, sugar, rubber clothing, government post office, automobile, bathtubs with running water, telephone, compass, printed books, daily newspaper, electric light, telescope, photographs, steam engine, railroads, steamboats, gasoline engines, thermometer, radium, moving pictures, silks, theaters, potatoes, turkey, chocolate candy, electric cars, watches, clocks, glass windows.

SAN FRANCISCO STATE NORMAL SCHOOL

MONOGRAPH SERIES—B

## SECTION II

# THE SCIENCES

Compiled by
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## INTRODUCTION.

Science is the predominant note of the twentieth century. Most of our thinking in all fields is now done in terms of it; our bread and butter are made by it. Yet our schools make but trifling preparation for this life of science. Practically no high school teaches all the sciences. Few give any except physics and chemistry. Biology, physiology and hygiene are rare subjects and geology and astronomy are almost unknown among high school courses. A general **qualitative** science course is as yet unthought.

Inevitably, specialists, who by their research advance our science, work with technical detail, mathematical analysis, and quantitative exactness. But in daily life we take cognizance only of the general principles and their concrete applications and qualitative characteristics. Unfortunately it has been the point of view of the specialist which has dictated our high school courses in science. From this point of view the textbooks have been written and it has been dominant in determining what type of course shall be accepted as an admission credit to the universities. Consequently we have **quantitative** science in the high schools instead of **qualitative** science; we have the science which prepares for the exactness of specialization instead of the science that prepares for general life comprehension. An example will show what we mean by qualitative science as contrasted with quantitative science. To know that gases expand when heated, and that this is the principle back of the operation of the steam engine and the gasoline motor, is qualitative. To know that "at a constant pressure the volume of a given mass of gas is proportional to its absolute temperature: $\frac{V_1}{V_2}=\frac{T_1}{T_2}$," and to prove this law by accurate experiments, and then to study the technical detail of the construction of the gas and steam engines—this is quantitative science. The first is for the layman, can be demonstrated quickly and dramatically, and explains, sufficiently for general intelligence, a common fact. The quantitative science is for the specialist and belongs in technical or vocational training. Quantitative science takes much time and labor, and to the majority of people is tedious and uninteresting. Consequently our high school science courses are bound to be limited in their number. Only a glimmering of chemistry and physics from the quantitative viewpoint can be had in two years of high school work. No high school could attempt to teach all the sciences—chemistry, physics, geology, astronomy, physical geography, biology and physiology. Indeed to teach all these sciences, **quantitatively,** would be as utterly useless as it would be impossible. Yet they can all be linked into an organic whole qualitatively and taught in a general science course of a year or two. This is all that persons of broad general intelligence now possess or need, and it is all our high schools need to teach.

Another consequence of quantitative science in our high schools is that science becomes abstract and separated into disconnected topics. Physics courses bear no relation to biology courses; physiography and physiology are as unrelated as history and algebra. Yet in actual life there is no such division of sciences into arbitrary groups. In looking at a tree and studying it, all the sciences play their part—physics in the law of capillary attraction, chemistry in the making of the plant tissues, astronomy in explaining the effect of the sun, of day and night, and of the seasons, geology in explaining the soil and throwing light on the evolution of the tree, physical geography in showing why this type of tree grew in this place—i. e., in showing the effects of the climate; biology in explaining the growth of the tree and physiology in explaining how I see it at all. Nature does not analyze all these various things into separate sciences as above. Yet our present quantitative science courses necessitate a technical knowledge of each distinct subject before we can hope to come to a natural linking of them into the explanation of one every day fact.

In a word, our high school science is technical, limited to one or two subjects, and wholly unrelated to daily life. Yet in our daily life we are constantly confronted with natural facts and artifical inventions which we must understand in order to be broadly intelligent. We should be able to explain these things simply and concretely; and the qualitative laws and principles which we learn should be illustrated by practical examples and dramatic, yet simple, experiments.

In this monograph an attempt is made to select those few general laws which give an explanation of the things we meet in our daily life, and to group under each law a number of familiar examples and illustrations.

Students who seek self-instruction from texts and reference books will find it difficult, it is to be frankly admitted, to discover explanations that will furnish this knowledge in the simple form we are seeking. It is unfortunate that text writers upon scientific subjects have been unwilling or unable to explain familiar facts in untechnical language and not involved with unessential details. The most wonderful thing about a telegraph system or a phonograph, however astonishing their effects, is the extreme simplicity of their principles as compared with the usual text descriptions of them. There is an unhappy notion of scientific snobbery which rather maintains that it is "unscientific" to use language which can be understood. Students are therefore advised, in all subjects possible, to request their teachers to give them assistance in reducing the usual explanations, involved as they are with useless detail of apparatus, to simple statements of principle in terms of ready comprehension.

NOTE.—Numbers refer to pages in the State Series Geographies—usually to the Advanced Geography, but when italicised, to the Introductory Geography. References to the Physics, Chemistry, Astronomy and other divisions of this monograph are by paragraphs, thus (Phys. 3) means paragraph 3 under Physics. References to the state texts are for examples as well as explanations; references to other parts of this monograph are for the scientific principle underlying the phenomena.

## PHYSICS.

1. **Gravity**:

What makes an apple fall to the ground? Upon the same principle, explain the pull of the moon on the ocean; the fact that the earth does not fly away from the sun (241-2); how the particles which make up our earth are supposed to have been drawn together from the nebula; how Neptune was discovered; why air does fly off the earth (242); why air exerts pressure.

2. **Weight**:

On the principle that the weight of an object shows how strongly the force of gravity is pulling that object, explain the following: differences in weight of the same object on a high mountain and at sea level; difference in the weight of the same volume of different substances, such as a quart of mercury and a quart of water; difference in the weight of the same object on Jupiter, Earth and Moon—under what conditions would it weigh most, where least, and why?

3. **Center of Gravity**:

Why doesn't a person on the opposite side of the earth fall off? On this principle, explain the following: If a hole should be bored through the center of the earth and out at the other side and you should jump into it feet first, where would you stop? Would you be upside down or right side up? How much would you weigh? What is meant by "down" and "up"? Do people on the opposite side of the earth walk head downward? Where would you get finally "down"? Why don't the sun and stars and earth all fall to the bottom of space? Is there a bottom of space?

4. **Air Pressure**:

Explain why water rises in a suction pump. On the same principle, explain atmospheric pressure (256 and Phys. 1); the pounds pressure per square inch; why the barometer foretells storms and indicates altitude. Explain: areas of high and low pressure (256); storm centers (257); the trade winds (245); monsoons (259–260); cyclones and tornadoes (257–8); thunder storms; the syphon; weather maps and weather prophecy (258); why a balloon stops going up after it reaches a certain height; why an aeroplane can't fly to Mars; why boiling potatoes on top of a high mountain won't cook them.

Show why a suction pump will not raise water more than about thirty-two feet.

5. **Displacement:**

Why does a cork float while a nail sinks in water? On this principle, explain why warm air rises (244–5); the calm belts at the equator and just toward the poles from the tropics (245, 247–8 and Phys. 9); why a balloon goes up; why cream rises on milk; what becomes of a cold ocean current when it meets a warm one (265); how gold is panned out; why the air is above the earth and rock under the sea.

6. **Conservation of Energy:**

Explain what we mean by saying no force ever is lost. On this principle, show why we are able to get power from Niagara (Phys. 9); show in what sense wood and coal are stored sunlight and why we can get energy from them (Chem. 9); why perpetual motion is the fundamental fact of the universe and yet why we cannot possibly get it in a machine; why it takes as much force to stop anything that is going as to start it when it is stopped. Why cannot a sparrow fall upon the ground without affecting even the farthest star? How can you justify the fact that one pound on the long arm of a lever can outweigh several pounds on the short arm?

7. **Centrifugal Force:**

Explain why water does not fall from a pail that is upside down when it is swinging in a circle up and down. On the same principle, explain why curves of car tracks and running tracks are inclined instead of level; why a top stands on its point while spinning; why the earth does not fall into the sun nor the moon drop into the earth; why an aviator looping the loop will not fall out of his machine even if he is not strapped in; why the earth is flattened at the poles; why you can't stay on "the social whirl" in the amusement parks (a round platform on which you sit while it stands still, but off which you swiftly slide when it starts to whirl); why the governor of an engine or the cars of the "air-ship" in amusement parks, rise up as they whirl; why the whirling of a cream separator makes the cream come to the center and the milk go to the outside; how the nebula, according to the nebular hypothesis, is supposed to have thrown off its "rings"; why there is an outward pressure, possibly shown in volcanoes, in the earth, the sun, and all rotating bodies; what would happen to the earth if it whirled much faster; if it revolved about the sun faster. Explain why your hands get red and swollen if you swing them while walking a considerable distance or if you whirl them rapidly in up and down circles; why water flies off a grindstone as you turn it; why separating milk clears the dirt out of it; explain throwing a ball; whirling a lasso before throwing it.

8. **Diffusion:**

Why does escaping gas quickly fill the whole room with its odor? On the same principle, explain why opening a window ventilates a room; how the breathing of air enables oxygen to get into the blood. Why will a few drops of milk cloud a whole glass of water? On the principle that solutions will diffuse through a membrane, explain how dissolved food permeates the intestines; how plant roots take up food; the reason for digestion; why starch has to be changed to sugar in the stomach; why plants have to have ammonia or some soluble compound of nitrogen instead of being able to gather nitrogen from the air.

9. **Heat and Energy:**

Explain why heating ice changes it to water and why heating water turns it into steam. On this principle, explain what happens to the heat applied to boiling water, since the water never gets hotter than boiling point; what becomes of the "cold" when ice is melted; explain why milk is evaporated in a vacuum; why boiling potatoes at high altitudes will not cook them (Phys. 4); meaning of boiling point; freezing point; why things get cold when they expand (251, 287, 293); explain how artificial ice is made (general principles only); why air gets hot when compressed (251); why the shrinking of the earth and sun is given as one of the causes for their interior heat; why rubbing two sticks together makes fire; why striking stones together gives a spark; why heat expands most things; how a steam engine or gas engine works (leave out all technical details, but show the principle); why warm air weighs less than cold; why you can make a balloon rise by filling it with hot air (Phys. 5); where the energy comes from that we get out of waterfalls—what heat has to do with it; why a thermometer registers temperature; tell of the important exception to the rule of cold contracting objects, in the case of freezing water, and picture what would happen to the earth if this exception did not operate; explain why water in a kettle over a flame "circulates"; why the warmer water keeps coming to the top; explain striking a match; burning of meteors; why one will get a hot box if the axle is not greased; how mountains are made as the earth cools; why there are cracks left between railroad rails; why wires strung in summer must be left loose; how earthquakes and volcanoes are formed by water seeping into the interstices of hot rocks; why the air rises at the equator, and sinks beyond the tropics (245, 247–8).

10. **Different Boiling and Freezing Points:**

By obvious examples, show that all substances do not have the same boiling and freezing points; from this explain distillation of alcohol and liquors; the salting of ice to freeze ice cream; the obtaining of benzine, gasoline and kerosene by the distillation of petroleum; explain why liquid air will boil if placed on a cake of ice; why molten iron will freeze if dropped into boiling water; what would be the condition of the earth if everything on it were heated past the boiling point of every solid now upon it; if chilled past the freezing point of every gas.

**11. Humidity:**

Explain why water gathers on the outside of a pitcher of ice water. On this same principle, explain the following: Cloud formation (251, 253); rain (251); dew (251); regions of heavy rainfall (251–253); deserts (252); hanging clothes by a stove to dry. Why does one breathe on his eye glasses to clean them? Explain the fog banks where the Labrador current meets the Gulf Stream (266); the fogs of San Francisco and other coast cities; frost; snow (*84–85*); explain why there is no rainfall in the horse latitudes (251); why it rains almost daily at the equator and why this is usually in the afternoon (253); why the frost on windows (or the mist in less cold climates) is always on the inside.

**12. Radiation of Heat:**

On the principle that heat radiates from hot objects, explain how the earth has probably cooled from a white hot sphere to its present temperature; why it is colder in the early morning, just before dawn, than at midnight; why February is colder than December; how heat gets here from the sun.

**13. Conduction of Heat:**

In using a silver spoon to stir a hot substance, why does the handle get much hotter than would the handle of a wooden or agate spoon used for the same purpose? On the same principle, explain why a hot poker will cool when taken out of the fire, or a cup of coffee get cold from standing in a cool place—where does the heat go? Explain why a silver spoon in a glass will prevent the glass from breaking when you pour hot water into it; why an asbestos mat keeps food from burning on the stove; why woolen clothes keep one warmer than cotton; why ice is packed in sawdust or straw; why a thermos bottle keeps things hot or cold; why a fireless cooker will cook, and why it can be used for freezing ice cream; why snow keeps plants and seeds warm; why the heat inside the earth does not melt snow. Why does a thick frying pan take longer to heat than a thin one? On the same principle, explain why it is cooler in the morning and later afternoon than around noon; why is it colder in the winter than in the summer.

**14. Retention of Heat:**

Why does silver cool more quickly than china after being in hot water? On the same principle, explain why the ocean is warmer than the land in winter. Why does silver get hot more quickly than china? On the same principle, explain why the land is warmer than the ocean in summer. On one or both of the foregoing principles explain the following things: Why the sea shore is a favorite summer resort; why the ocean does not freeze when a pool of water—even of salt water—at the same latitude on land freezes solid; why a china plate will dry when rinsed with hot water while a tin one stays wet; why July and August are hotter than June; why it is warmer at one or two o'clock in the afternoon than at noon; why islands and places which have prevailing winds from the ocean, have an equable climate (271). Explain the cause of monsoons (259); of sea breezes during the day and land breezes at night by the seashore.

15. **Sound:**

Explain sound on the principle of air waves. Could we hear a violent explosion on the sun or moon? Why? Show how a loud explosion such as a cannon fired over water, will kill the fish in the water; on the principle of sound waves, explain the following: Non-electric telephone (two tin cans with a tight string or wire between them); the speaking tube; the megaphone; phonograph; echoes; shaking of a house by thunder. Show how the rapidity of the sound vibrations affects the pitch in the musical scale; from this explain sympathetic vibrations of a violin string when the same note is struck on the piano; give the velocity of sound in feet per second. If you saw steam rise from a whistle three seconds before you heard the sound, about how far away would the whistle be from you?

16. **Heat and Light:**

Illustrate the fact that light is a special form of radiant heat by showing why an iron glows when it gets hot. On the same basis, explain why only intensely hot substances have a spectrum; how light gets here from the sun; why an incandescent light globe radiates heat; why we can get heat by burning wood that has been put together in the plant by the energy of light; why we focus heat as well as light with a magnifying glass; why a burning object usually gives off light as well as heat.

17. **Light and Chemical Action:**

On the principle that light furnishes the energy for many chemical reactions, explain the following: The combining of elements in the green substance of plants to make starch, etc.; the bleaching of clothes in the sun; the reason dark patches are left on the wall when a picture that has been hung for some time is taken down; the keeping of beer, peroxide, etc., in colored bottles; explain the general principle of photography (without technical detail).

18. **Speed of Light:**

Why do we see lightning before we hear thunder? On the same basis, explain why a woodcutter's ax seems to be in midair when a person standing at a distance hears the blow; why you see the steam rise before you hear a whistle. How rapidly does light travel? How long does it take light to get here from the sun? From the nearest star (about 26,000,000,000,000 miles)? If an inhabitant of a planet of Sirius (the brightest star in the sky, 51,000,000,000,000 miles from here) had an instrument by which he could look at our earth, and see the people on it as we see the mountains on the moon, whom would he see in the presidential chair in the United States? How do you account for the extraordinary, but truthful, statement in Flammarion's novel, "Lux," which points out that if one could travel faster than light, or some way get a record of the light in the farthest spaces, he could see things happening on earth which really happened eight, ten, a hundred, a thousand or a million years ago, just as if they were happening at the time of the observation?

19. **Bending of Light Rays**:

Explain why a stick thrust into water seems to be bent. On this principle of refraction, explain the magnifying glass, the microscope, the telescope; explain the scattering of rays by a prism; the forming of a rainbow; sunset colors; the forming of a spectrum; explain the general principle of the spectroscope and show what it has done for chemistry and astronomy. Explain eye glasses; why our eyes are ball shaped; why we see two pictures as one in a stereoscope; why stars "twinkle"?

20. **Focus and Magnifying**:

Explain the formation of an image by a pinhole in a piece of cardboard; why is the image upside down? On the same principle, explain the need of a lens in a camera; in the eye. Why do stereopticon and moving pictures have to be upside down in the machine? Is the image formed on the retina of your eye upside down? (If so, why don't you see everything topsy-turvy?) What is the purpose of the lens in a stereopticon? Why does a thing near by look large. and one far away look small? Explain how the dentist's mirror that he uses in the mouth (or any concave mirror) magnifies; explain the general principle of the reflecting telescope; explain the taking of a photograph, without any technical details.

21. **Magnetism**:

Why does a magnet pick up a piece of iron? On the same principle, explain why the compass points north—also why it varied somewhat on Columbus's voyage to America; explain an electro magnet; on this basis, show how making and breaking a circuit at one telegraph instrument causes a click in another instrument many miles away; explain in the same manner, without technical details, the principle of the electric bell of the telephone; of the electric motor.

22. **Electric Attraction**:

Why will a rubber comb rubbed on a woolen cloth pick up bits of paper? On the same principle, explain the flying of your hair after the comb on cold dry mornings; sparking of a cat's fur as you stroke it; the spark you get when you touch anything after shuffling on a carpet in dry weather.

23. **Conduction of Electricity**:

Explain completing a circuit in electricity; on this principle, explain the electric push button, the telegraph (including the principle of the Morse alphabet), turning on an electric light, starting an electric street car; electrocution; name some substances which conduct electricity. What is electric resistance? On this principle, explain the insulation of electric wires, the glowing of an incandescent light; the heat of an electric iron. Explain why we have fuses where the electric wires enter our houses; why copper wire is generally used for carrying electric currents; explain cause and effect of short circuits; explain why very fine wire is used in the coils of electric heaters; why linemen working with live wires wear gloves; what a live wire is and why it is dangerous, the meaning of grounding a wire; why one wire is all that is needed to telegraph; why two wires are used for electric lights. Explain lightning; the arclight; sparking in automobiles; electroplating.

24. **Electricity**:

Explain, on the electron theory or on the wave theory of electric transmission, without any technical details of the apparatus, the telephone; wireless; radium; the passage of a current of electricity along a wire.

25. **Making Electricity**:

Be able to explain without technical details, the general principle of the dynamo, the dry cell, and the storage battery.

## CHEMISTRY.

1. **Chemical Elements**:

Upon the atomic theory, explain the difference between an element and a compound; between a physical mixture and a chemical combination; be able to distinguish among these three (element, compound, mixture) in the following list: Air, water, sand, gold, hydrogen, salt, milk, chalk, carbon dioxide, oxygen, lime, nitrogen, sulphur, alcohol, sodium, ammonia, soda, nitric acid, diamonds, sugared coffee, radium, phosphorus, sulphuric acid, calcium. Tell what elements compose five of the compounds named.

2. **Solutions and Emulsions**:

Be able to distinguish between a solution and an emulsion and to give their common characteristics as well. Show the part played by solutions and emulsions in the following: Digestion of starchy foods in the mouth, putting ammonia in water that is to be used in washing greasy things, digestion of foods in the stomach and small intestines, use of lye in soaking out pans in which food has been burned, cleaning bath tubs with kerosene, softening water with borax, putting strong lye down clogged drain pipes of kitchen sinks to clear them, cleaning clothes with gasoline, electroplating.

3. **Chemical Changes**:

Tell what is meant by a chemical change. Illustrate by showing the main change in the grouping of the elements entering into the following chemical reactions (equations and formulas are not necessary): Vinegar acting upon soda; lye acting upon grease; metallic sodium acting upon water; air rusting iron.

4. **Acid and Alkali:**

Be able to give the important differences between acids and alkalis with a few common examples of each. Tell what happens when acids act on alkalis; on this basis, explain: Soda relieving "sour stomach"; soda acting on sour milk (Why aren't sour-milk pancakes sour?); putting lye on greasy floors before scrubbing them; putting soda with tomatoes before adding milk to make cream of tomato soup; adding a little soda to fruits that are being canned to save sugar; putting baking powder in cakes and biscuits to make them rise.

5. **Burning:**

Explain what is meant by burning; why must air always be present? Upon this principle, explain the action of oxygen on the flesh of the body (composed largely of hydrogen and carbon); the principle of fire extinguishers; explain why one should roll instead of running when his clothes catch fire; why water will put a fire out; why the leaf mold of the coal swamps did not slowly burn (or oxidize) as the present day leaf molds do; why one needs fresh air; why an oil stove "eats up" the air in a room; reason for having vacuum in incandescent light globes; why iron rusts; why wood decays.

6. **Chemical Combination:**

Show what happens when hydrogen and oxygen combine, pointing out the difference between the compound thus formed and the elements which combined to make it. On the same principle, explain the making of starch from carbon dioxide and water in the green parts of plants; explain the action of those bacteria which are found on the roots of beans, peas, alfalfa, etc., in making soluble forms of nitrogen—show the importance of this and the effect on the fertility of the soil where these things grew; explain making of alloys in type metal; making of silver amalgam, cement, fireproofing; making artificial flavors and colors. Upon the principle that water is taken into chemical combination with certain compounds to form other substances, explain the following: Setting of plaster of paris; effect of cooking and salivary action in changing starch to sugar; slaking of lime; why oatmeal becomes comparatively sweet when cooked a long time.

7. **Taking Compounds Apart:**

Show the importance of the chemical action involved in taking things apart—disintegrating them—as illustrated by the following: Use of yeast in bread dough; use of chloride of lime in bleaching clothes; electroplating; using lemon juice for removing stains; assaying metal ores.

8. **Analysis:**

Show the great importance of chemical analysis in all branches of life as illustrated by the following: Selecting a balanced diet—in this connection, give the general difference between the fats, the sugars and starchy foods, and the proteids, showing what element is in the proteids that is lacking in the others and giving a number of illustrations of each class of foods. Show the advantage to the housewife of knowing the comparative food values of various articles of food as revealed by chemical analysis, in the economical and healthful feeding of her family; show the service rendered to her by the pure food law and the absolute necessity of chemical analysis in enforcing that law. Give some idea of the importance of chemical analysis to agriculture during recent years, showing how it enables one to determine the fertility of soil and the elements necessary in fertilizers (name two or three of these elements); show how milk analysis helps in determining the productivity of a cow.

9. **Heat From Chemical Action:**

Where does the heat come from in such a case as the pouring of nitric acid on copper filings or the action of metallic sodium on water? On this principle, explain the heat from a burning match; from the burning of the tissues of the body; from a gas flame. Is the source of heat the same in these cases as in the rubbing of two sticks together, or getting a spark from flint and steel, or *striking* the match? Explain the difference, if there is any.

10. **Chemistry and Living Matter:**

Although, of course, the exact chemical reactions are unknown, there seems to be good reason to suppose that the effect of certain chemicals upon living matter is the result of some complex chemical reaction. Illustrate this principle by the action of opium, of tobacco, of alcohol, of chloroform, ether, aromatic ammonia; of coffee and tea; of poisons. On the basis of similar reactions being responsible for the disintegration of bacteria, explain the action of peroxide in killing germs—why does it foam?—of iodine, carbolic acid, and other antiseptics; of food preservatives, such as benzoate of soda—in this connection show the advantage to the housewife of knowing which of the common preservatives are harmful. Explain ptomaine poisons. On the principle that tin reacts with acids in the presence of air to form poisonous salts, explain why canned goods should be put into a dish as soon as the can is opened; explain poisoning from canned tomatoes.

11. **Applications of Chemistry:**

To give an idea of the vast importance of chemistry in modern industry, be able to show how practically everything in the room where you are, every article of clothes on your body and every prepared food that you eat has depended on man's understanding of one or more chemical principles. See how many industries you can name that are not dependent for their very existence on a knowledge of some branch of chemistry, either by the men engaged in the industry itself or those engaged in the making of things essential to that industry.

## OUR EARTH AND WHERE IT IS (ASTRONOMY).

1. **The Universe.** Show by some clear and graphic method the inconceivable distances of the stars—work out by arithmetic and compare the time it takes light to get here from the nearest of the stars (26,000,000,000,000 miles) to the time it would take light to get here from the sun (93,000,000 miles); compare the length of time it would take one to travel to the nearest star going at one hundred miles an hour, with the time needed to reach the sun at the same speed. Compare the size of the stars with that of the sun. Speculate as to the possibility of life on a star and upon the possible planets revolving about a star. What are the stars made of? Show something of what the spectroscope has done for astronomy. Explain the term "fixed star," and show why it is not absolutely true, yet why until recently it seemed to be. Tell something of the condition of interstellar space, with reasons for thinking as we do in the following regards: presence of air; presence of pieces of matter; presence of dark stars; coldness; darkness; size compared with that of occupied space; how ether carries light and radiant heat. Speculate on the possibility of an end of space. About how many stars are known to man? What makes the milky way? Are all stars the same distance from us? Do you suppose you would see constellations in anything like their present form if you looked from such a star as Sirius (the brightest star in the heavens, about 51,000,000,000,000 miles from us)? Why? What is a light year?

2. **The Solar System.** Be able to name the planets in their order of distance from the sun, to give the distance and period of revolution of the farthest one with the story of its discovery (Phys. 1); to give the main arguments for and against Mars being inhabited; to give the distance from the sun and period of rotation and revolution of the earth; to tell how long a "year" on Mercury is and why we so seldom see Mercury; why Venus is sometimes evening star and sometimes morning star; explain transits of Mercury and Venus; why we see no transits of other planets; explain what we mean by the plane of the ecliptic; be able to tell of the moons of one or two of the planets besides our own and to give a possible explanation of the rings of Saturn. Show what relation comets have to our solar system and give some explanation of comets and their tails. Explain meteors, or shooting stars, making the great difference between them and real stars, and the difference between them and comets, perfectly clear. Explain possibility of planets revolving around the stars and why we can know nothing of them.

3. **The Earth.** Tell what is meant by the axis, equator, poles, of our earth; have other planets, and the sun and stars, poles, axes, and equators? Tell what is meant by the inclination of the earth's axis, or the earth's inclination to the ecliptic. Be able, on the basis of the difference between the heat from direct and slanting rays of the sun (Phys. 13) and on the basis of the earth's inclination, to make a simple demonstration which any child can see clearly, of the cause of the different seasons on earth (240–241); of the midnight sun; of the difference in the length of day and night in different seasons; of the equinox; of the reasons for Argentine having Christmas in mid-summer and the fourth of July in mid-winter—

speculate on school terms in the southern hemisphere; tell how many times the earth rotates on its axis for each time it revolves about the sun (241); on this explain why the calendar has had to be corrected several times and why we have leap years as we do—why do we skip a leap year which comes at the beginning of a century three times out of four? In which direction does the earth rotate (239)? Which way does it go around the sun? Why does the sun seem to rise in the east? Explain on the basis of the earth's rotation the rising and setting of the stars and the fact that the north star seems never to move; why the stars rise about four minutes earlier every evening.

4. **The Moon.** Be able to give its relative size compared to the earth; its distance from the earth; the impossibility of the type of life which we have here existing on the moon; speculate upon the possibility that life forms on the moon and on other planets might adapt themselves to these entirely different environments even as life on this earth has adapted itself to meet the conditions of this earth; give the reasons for calling the moon a dead world. What makes the "man in the moon"? How high could you jump on the moon and why (Phys. 2)? Explain how we know the moon is cold; give a simple demonstration of the cause of eclipses of the moon and of the sun. What is the period of rotation of the moon; the period of its revolution about the earth? On this basis explain why we never see the other side of the moon; explain the cause of moonlight; the phases of the moon; why the moon rises about fifty minutes later each night; why the new moon always sets shortly after the sun and the full moon rises at sunset. What are the effects of the moon on our earth?

5. **The Sun.** Show graphically the diameter of the sun compared to that of earth; volume compared to that of earth; how long would it take to get there going a mile a minute? If the sun should be instantaneously destroyed how long before the earth would become dark? Tell what sun spots are, and something of their probable effect on our earth; give a short description of the corona; description of the height of the "flames" on the sun's surface. Explain the sun's components; the discovery of helium on the sun before it was found on earth (Phys. 19); the power of the sun's gravitational hold upon the earth; the dependence of the earth on the sun in the following particulars (bring each of these out quite fully, showing just how the sun is responsible for these phenomena, Cf. Ph. Geog. 4, 6, 7): Rain, snow, glaciers, rivers, icebergs; trade winds; belt of calms; deserts; soil-making; plant life; the making of starch; animal life; eyes (include principle of adaptation to environment); aurora borealis (northern lights). Tell something of the sun's motion through space—its speed and direction; does this have any noticeable effect on our lives?

6. **Nebulæ.** Tell what a nebula is, give an idea of its size, of its consistency (solid, liquid, or gaseous). Be able to show about where some one or two of the great nebulae are in the sky. What is the usual shape of most of them? Give La Place's Nebular Hypothesis of the formation of a solar system from a nebula. Give Chamberlain and Moulton's Planetesimal Hypothesis of the forming of a spiral nebula from a sun and the making of planets by the gathering of pieces of solid matter.

## THE EARTH'S HISTORY (GEOLOGY).

1. **The Earth's Infancy.** Be able to trace the earth's probable history from the nebula to a globe with oceans and continents, by the following steps, giving reasons for supposing that these things happened as you say: The white hot sphere of rock (Phys. 9); the cooling of the rock (Phys. 12) and the forming of very dense clouds high above the earth (Phys. 11); the first rain (Phys. 11); the forming of pools and their mergence into great oceans; the earth covered completely with water; the emergence of the first islands (Ph. Geog. 2); the making of soil (*1–5*, and Ph. Geog. 8); the seeming lifelessness of the earth at this time; the unthinkable antiquity of this supposed history. (Note: There is not much untechnical material for this topic, but most of the elements can be reached by simple inference from a general knowledge of the laws under which the earth now operates).

2. **First Life.** Probability that it was in water; question as to whether animal or plant came first—which is more likely; why we have no positive geologic record of the first forms; the reason for supposing first plants and animals similar to the one-celled plants and animals now living; the fact that all life as we know it starts from one cell (Geol. 1); the habits of life of a one-celled organism—how it reproduces, eats, moves, eliminates, etc. (Biol. 1.) The difference between those one-celled organisms which have the green substance, chlorophyl, in them and those which have not, as regards type of food; to which class do most plants belong? most animals? Illustrate the probable development of the simpler many-celled plants and animals from the one-celled by comparison with the development of such many-celled plants and animals from one cell now.

3. **The Coming of Complex Forms.** Compare complex plants, such as ferns, with simple one-celled plants as to ability to survive, to get food, to reproduce, etc. Do the same with a complex animal, such as a fish or lobster, compared with a one-celled animal. Tell of the earliest fossils, how we know they are earliest, where they are found, how they compare in complexity with the one-celled animals and plants that probably preceded them, and with the present life-forms on earth; explain the law of the tendency to vary, showing how this operated in producing these complex forms.

4. **The Coal Age.** Be able to give a full and vivid description of a coal swamp (following the general plan on pp. 2, 3, 4, Ad. Geog., but going into more detail). Describe some of the animals that lived at that time (called the Carboniferous period in geologies); give an idea of the great length of time that has elapsed since. Be able to show clearly how the rise and fall of the land has operated in producing the coal beds (Ph. Geog. 2). Did all continents or all parts of any one continent usually become submerged at once? Is the rising and sinking going on now? Illustrate. (Ph. Geog. 2.) Show how the energy given to the plants by the sun in the coal age is released now by us when we burn coal (Phys. 6 and Chem. 9). Be able to describe a coal mine interestingly, and to locate some of the largest coal fields in the world. Show something of the great importance of coal in our daily life and industries (76, 108, 132, 199, 225, 319, 331, 350–1–2–3; 357, 375, 386, 396, 425, 469, 491, 506).

5. **The Period of Giant Lizards.** Be able to sketch briefly the great changes that took place in the vegetation and animals during the vast ages from the coal age to the age of dinosaurs (Jurassic); be able to describe some of the mighty animals that lived at this time, including water, land and air forms; show what laws must have operated in the extinction of the animals of this time.

6. **The Great Ice Age.** Tell something of the great glaciers, and go into some detail (not technical, however,) as to the great effects of this glaciation and its extent (see Ph. Geog. 7).

7. **Primitive Man.** Be able to tell about the habits of life of primitive man, to show what evidence we have of these things, to compare him with savages now living, and to give a rough approximation of the length of time that has elapsed since the men of whom we have the earliest records lived; show the great lapse of time between the dinosaurs and primitive man; the possibility that primitive man was contemporary or previous to the ice age; and the lapse of time between primitive man and the earliest civilization of which we have history.

## THE EARTH AS IT IS (PHYSICAL GEOGRAPHY).

1. **The Earth as a Whole.** Describe the form and size of the earth (239). Explain its axis and equator (*123*, *142*, and Astr. 3). Describe the earth's gravity (*124*, *125*, 241, 242, and Phys. 1 and 2). Describe the earth's rotation and its effect on wind, ocean currents, day and night, standard time, etc. (44 to 46, 239 to 242, 246, 263, 265, 266, Astr. 3). Explain latitude and longitude fully, clearly and simply so that any child can grasp them easily (39 to 44). Explain the earth's revolution; its effect on seasons, the rainy and dry seasons of the tropics as well as our winter and summer; its effect on the winter night of the polar regions and the length of night and day all over. (240 to 242, 248, 288, and Astr. 3.)

2. **Movements of Earth's Crust.** Describe the growth of a continent and the causes operating in its formation (1 and 2, Phys. 7). Describe the making of mountains with instances and causes (1, 2, 4, 5, 178, 350, 439, 466, 570, and Physics 9). Show the effects of the rise and fall of land on coast lines and consequently on the settlement and industries of mankind—be able to show why rise and fall affect coast lines as they do and to pick out on a relief map coasts which have been rising from those which have been sinking (16, 17, 49, 70, 99, 207, 286, 319, 320, 327, 328, 374, 439). Show the effects of rise and fall of land on the formation of coal, and where in general coal deposits have been found—be able to tell the whole story of the making of coal and the reason for its being in veins (2, 3, 76, 77, 78, 316, 319 and Geol. 4).

3. **Interior Heat of the Earth.** Be able to give the possible causes, the proofs and the effects of interior heat (*132* and Physics 9), explaining on this basis, with illustrations, geysers (165, 508), volcanoes (6, 150, 178, 184, 186, 414, 415, 440, 508, 580, and Physics 9); earthquakes (186, 302, 370, 439, 440, 466, 623–24 and Physics 9). Read and be able to report on the last part of Bulwer Lytton's Last Days of Pompeii.

**4. Winds.** Explain the meaning of air pressure (256–57 and Phys. 4); be able to explain clearly the cause of winds (244–5, 259, and Physics 5); on these principles explain weather maps and be able to show that you can read one in a general way (they will be sent free on application to the weather bureau) (258, and Phys. 4, 5, and 11). In the same way explain the cause of the belt of calms and of the horse latitudes and show the effect of these belts on the lands they cross (see in this last connection the 6th paragraph of this section and Phys. 11). Give examples from the geography (247–48, 251–52–53, 287, 321, 365, 412, 441 and Phys. 5 and 9). In the same way be able to give the causes and effects of the trades and anti-trades, with illustrations (180, 185, 207, 245, 246, 251–52–53, 263, 287, 451, 477, 501 and Phys. 4 and 5 and Astr. 3). Do the same for the prevailing westerlies (9, 150, 246–47, 251–52–53, 265, 267, 287–88, 309, 321, 327, 356, 405–406, 501, 508, 555).

**5. Winds**—(Continued). Give the causes and effects of monsoons; of the day time sea breezes and nightly land breezes on the sea shore; also show what lands are affected by monsoons and how (Phys. 5 and 11; 259, 451, 460, 501). Explain the variable winds spoken of in the following parts of the text, giving the general causes of variable winds and their influence on man's life in the regions they affect (9, 50, 71, 255–56–58–59, 322). Similarly explain and describe tornadoes and hurricanes (258 and Phys. 4) and typhoons (187 and Phys. 4).

**6. Humidity.** Explain the meaning of humidity, the effect of cold and heat on the humidity of the air and the consequent rainfall and lack of rainfall in various regions, giving the physical causes and the geographical results (150, 152, 187, 248, 251–52–53, 257, 287–88, 293, 365, and Phys. 11). On the same principle explain, with illustrations, the rain carrying winds (9, 71, 99, 150, 180, 185, 187, 207, 251, 267, 287, 327, 356, Phys. 11); the drying winds (9, 150, 187, 251–52–53, 288, and Phys. 11).

**7. Glaciers.** Give the causes of glaciers, a vivid description of them (you should read John Muir's little book, Stickeen, to get the real feeling of the glacier), the location of some of them, and something of their general laws, motion, etc. (13, 178, 204, 406, 508). Similarly show how icebergs are formed (204) and tell something about them—the danger to navigation, the proportion above and below water, etc. Tell of the Titanic disaster. Tell of the ice age, or periods of extensive glaciation (Geol. 6). Give some of the proofs of it, its effects on plant and animal life, and especially the effects of the great glacier of our own country and in other countries, on commerce, agriculture, and manufacture (12 to 15, 49, 70, 119, 193, 316, 319, 332, 346).

**8. Erosion and Soil Forming.** Explain the carving out of valleys, the making of canyons, and the wonderful sculpturing done by the falling and running water through the ages, *11-13*, *30-31*, 16, 49, 67, 99, 317). Show how the same forces, the washing of waves, and the expansion of freezing water (Phys. 9) act in the making of soil (*1–5*). Similarly explain and illustrate the formation of flood plains and deltas (49–52, 9, 98, 346, 440, 451, 461, 483).

9. **Tides and Ocean Currents.** Explain the cause of tides (Phys. 1 and Astr. 4) and tell how many there are in twenty-four hours; the difference between high and low tides (71, 262–63). Explain the influence of the wind and the earth's rotation on ocean currents; describe these currents, locating and showing the effects of the Gulf stream, Labrador current, Japanese current, and giving a general idea of the direction of the other ocean movements (50, 71, 263 to 268, 271, 309–10, 321, 508). Show what happens where the Labrador current meets the Gulf stream (265, and Phys. 5 and 11).

10. **Temperature.** Explain and illustrate the effect of latitude on the temperature of any place (49, 71, 99–100, 177, 180, 268–71, 287, 293, 296, 309, 320, 373, 451, and Phys. 13). Explain and illustrate the effect of altitude on temperature (152, 204, 307, 257, 269–71, 303, 309, 365, 405, and Phys. 14). Similarly explain and illustrate the effects of the presence of water in large bodies on the temperature (184, 259–60, 265–66, 271, 327, 356, 383, 412, 508, 555, and Phys. 14).

## BIOLOGY.

1. **Cells.** On the principle that all living things are made up of living cells which eat, breathe, eliminate, grow, and reproduce, explain: Why complex plants must have a circulation of sap; why cutting of a strip all around the bark of a tree will kill the tree; why a circulation of blood is necessary in all the complex animals; why stopping the heart of an animal will kill it; explain the growth of plants and animals; the repairing of wounds in both. How do all the cells in plant and animal get nourishment? What becomes of their waste products? How do they get oxygen? Be able to describe some one celled animal or plant, showing how it lives; in the same way describe a bacterium.

2. **Heredity.** Explain clearly and with examples the law of inheritance as discovered by Mendel and others. Show how the intelligent use of the laws of inheritance has enabled Luther Burbank to evolve entirely new species of vegetable, fruit, and flower (Why are these new forms usually propagated by cuttings instead of seeds?). In the same way explain how men have developed varieties of domestic animals, as, for example, the following: Short-legged sheep; hornless cattle; swift race horses; powerful draft horses; highly productive milch cows. Show the value of the pedigree of a race horse. Show, by some illustrations, how natural selection has made use of the same laws in the development of new species of plants and animals.

3. **Acquired Characteristics.** Why is it that the binding of the feet of Chinese girls for many generations has not resulted in their children being born with any smaller feet, while the children of naturally musical parents usually inherit a musical tendency? On this principle, show which of the following characteristics can be inherited, and why: Deafness caused by an accident; tuberculosis; blue eyes; six fingers; four fingers, the fifth having been cut off; drunkenness; weak will; constitutional heart trouble; feeble-mindedness (not resulting from accident or disease).

4. **Adaptation and Survival.** On the principle of natural selection and the survival of the fittest, explain the following adaptations to environment: Water-cells in the stomach of the camel; the fatty hump of the camel; gills of a fish; lungs of whale and porpoise; white fur of polar bear and brown fur of cinnamon bear; tawney color of the lion; arrangement of leaves and branches in whorls; needles for leaves of trees of cold countries; hibernation of bears; greenness and sourness of unripe fruit; keen scent of most animals; changeable colors of the chameleon and tree toad; dull coloring of the deer; thick leaves of cactus; "wings" of flying fish and flying squirrels; thorns of rose bush; spines of the cactus.

5. **Nitrogen.** On the principle that all plants and animals are partly composed of nitrogen and must get it in soluble form in order to live, explain: The value of the bacteria on the roots of beans, peas, alfalfa, vetch, etc.; the reason soil in which these crops are grown becomes rich instead of poor; explain the cause of worn out soil on old farms; the use and one necessary ingredient of fertilizers; the object of plowing in a crop of grain where soil is poor; the reason plant eating animals have to eat so much larger an amount of food than flesh eating animals. Why do not natural fields and forests require artificial fertilizing while cultivated fields usually do?

6. **Co-operation.** On the principle that adaptation to environment has led to a remarkable co-operation, usually entirely unconscious, among the plants and animals, explain: The cycle of oxygen and carbon dioxide—the oxygen being given out by the plants as they make food, the carbon dioxide being given out by the animals as they consume food; the carbon dioxide being used by the plants as they make food, the oxygen being used by the animals as they consume food. On the same principle, explain the co-operation between the pea plant and the bacteria on its root, the plant furnishing food, the bacteria furnishing nitrogen in soluble form; likewise, explain the soil-loosening activity of the earth worm, the flower-fertilizing activity of the bees; the insect-destroying activity of birds; the scavenger work done by kites, jackals, ants, etc.; show in each case the fact that both parties of the co-operation are benefited.

7. **Division of Labor.** On the principle that the cells making up higher plants and animals are differentiated so that each cell or group of cells is specialized for some particular function, explain the division of labor in animal and plant, illustrating by describing the functions of the cells of leaves, flower-petals, stamens, pollen, ovaries, stem and roots in plants, and the cells of muscles, nerve, digestive system, reproductive organs, glands, and skin in animals. Show how a similar tendency to divide labor and specialize for some function shows itself in large groups of higher organisms by describing the wonderful organization of the bee hive and the ant hill, and still more in the steadily increasing specialization and division of labor of mankind, which makes the whole human race like a great organism.

8. **Common Terms.** Explain the following terms simply and with clear examples: Vestigial organs, atavism, recapitulation theory, artificial selection, evolution, reversion to type, cross breeding, protective coloring,

acquired characteristics, germ plasm, adaptation to environment. Identify the following men in relation to features of the previous theories and laws with which their names are familiarly connected: Charles Darwin, August Weissman, Herbert Spencer, Gregor Mendel.

## PHYSIOLOGY AND HYGIENE.

1. **Anatomy.** Be able to locate the following parts of your own body on a chart: Stomach, liver, large intestine—follow its course; appendix; small intestine; artery where pulse can be felt; kidneys, heart, lungs, cerebrum, collar bone, wrist bones, knee cap, pelvis, vertebræ, shoulder blades, jaw bone.

2. **Digestion.** Why must food be in solution before it can pass through the walls of the intestine into the blood? (Phys. 7.) On this principle, explain the action of the juices of the stomach, intestine, pancreas, etc.; explain why one should chew food well, especially starchy things; why certain foods need cooking; why milk should not be gulped down; why greasy things are indigestible; why the stomach churns things around; what causes stomach ache; what a furred tongue indicates; why fats have to be changed into a kind of soap in the intestine; why pepsin gum may help digestion—what has the pepsin to do with it? The chewing? Show the advantage of some liquid with meals, but the harm of washing foods down down with water.

3. **Nutrition.** Why does the body require sugars and starches, fats and proteids in order to nourish all parts? On this basis, explain the meaning of a balanced diet; show the type of food that a vegetarian needs, to take the place of meat. Explain why a person needs variety in his food. Be able to distinguish which among the following list of foods are fats, which are sugars and starches, and which are proteids, predominantly: Apples. oatmeal, milk, cream, sugar, butter, eggs, fish, bread, cheese, meat, rice, nuts, corn meal, custard, beans, salad oil, peas, string beans, candy, ice cream, blanc mange, peaches, macaroni.

4. **Respiration.** On the principle that the heat and energy of the body are furnished by burning (oxidation)—(Chem. 9), explain why we breathe; why one drowns under water; how tuberculosis of the lungs and pneumonia frequently cause death; explain the function of the red corpuscles of the blood; why does the whole system lack tone and energy when there is a deficiency of red corpuscles, as in anæmia? Explain the importance of deep breathing; the effects of tight corsets; the importance of proper ventilation of school and home. Explain in some detail how this ventilation is best accomplished. Show why adenoids or other obstructions of the air passages should be removed, and why they make the whole system sluggish. What is the body's way of expelling any foreign matter that gets into the air passages? Then, is a cough itself dangerous? Are cough syrups, which keep one from feeling the irritation of foreign matter in the air passages, of any permanent value in curing a cough?

5. **Elimination.** Why must the waste products of the body be constantly cleared away? On this principle, explain why constipation will

cause headache and general sluggishness; why bulky foods are needed; why most temporary derangements are relieved by a laxative (but point out the harm of too frequent use of laxatives). Show the danger of inactive kidneys; the use of drinking plenty of water. Explain why people are refreshed by turkish baths; why "getting a sweat up" by vigorous exercise, is healthful; why one should bathe frequently. Why does one breathe out as well as breathe in?

**6. Circulation.** On the principle that every part of the body must receive nourishment, and oxygen, and must eliminate wastes, show the use of the blood and its circulation. Explain the business of the heart; of the lungs; of the kidneys; of the arteries; of the veins. Why does exercise make one hungry? Why does exercise make one warm? Why do you perspire when you exercise? Why does your heart beat more rapidly? Why do you pant? Why does one die if the heart stops beating? Where does the blood gather nourishment for the cells of the body? How does the blood get rid of the wastes that it gathers up? Where does it get the oxygen for the cells? Explain the pulse; the blue veins on one's hand; the throbbing one feels in his head after violent exercise.

**7. The Nervous System.** Show how an impulse of sensation passes from your finger to your brain; how an impulse of motion passes from your brain to a muscle; show how an impulse can be "short circuited," passing from your finger to your muscle before you become conscious of it, as when you jerk your hand back when you burn it; on the same principle, explain the winking of your eye when a person's hand comes near it; what is the advantage of such reflex actions? What is the advantage, then, of becoming conscious of pain at all? On this last principle, show the harm of purely alleviative measures in place of thorough cures, illustrating by showing the futility of checking pain by the use of such things as toothache gum; opium; headache powders; cough syrups; soothing syrups for babies.

**8. Germ Diseases.** Why will contact with a smallpox patient frequently give a person smallpox? On the same general principle, explain the quarantine of patients with contagious diseases—what makes a disease contagious? Explain the danger of public drinking cups; the reason for disinfecting wounds; the menace of flies; the advantage of paper towels in public places; the reason for keeping dust down so that one does not breathe it. Show why malaria can be stamped out by eliminating mosquitoes; why states maintain a dairy inspection service at considerable expense; why cities pay highly to insure a supply of pure water; why it is inadvisable to wear the clothes of others; why cities pass ordinances against spitting in public places. Show why it is the duty of any one afflicted with any contagious disease to exercise special care against its spread by seeing to the proper disposal of body wastes, by avoiding the use of public cups and towels, by keeping as much as possible away from other people, disinfecting anything he has handled before it is handled by others, etc. Explain the need for teaching these things in our public schools, and for the teacher having a thorough understanding of them; explain the need of good ventilation and general cleanliness. Show how we know that there are disease germs, and what proof we have that they are responsible for all contagious and many other diseases.

9. **Resistance to Germ Diseases.** On the principle that in the healthy individual there are natural enemies of disease germs, such as white corpuscles and chemical substances in the plasma of the blood that kill the germs, explain the following things: principle of vaccination; of the use of antitoxin in diphtheria; serum treatments. On the principle that the blood tries to reach the infected parts of the body to protect them by the assisting elements it carries, explain the swelling and inflammation of infected places; show the value of bringing the blood to a diseased part by such means as rubbing, poulticing, heating, or applying mustard plaster in the vicinity; give a possible explanation of the rapid coursing of the blood through the body, causing fever, when the body is generally infected. Show how the flow of mucus in the air passages when one has a cold is an attempt to expel disease germs. Explain the fundamental importance of good health in resisting disease.

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SAN FRANCISCO STATE NORMAL SCHOOL

MONOGRAPH SERIES—B

## SECTION II

# LITERATURE

Compiled by
P. F. VALENTINE

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## LITERATURE.

The object to be reached by this outline in literature is an acquaintance and appreciation of the various fields, ideals, and phases of human living presented by literature rather than any intensive study according to the technical code which schooling has traditionally established. Students may be assisted by the use of Bulletin No. 10, by Allison Ware, listed upon the cover pages of this monograph.

There will be two parts to the literature tests. Upon admission each student will be requested to submit a preliminary statement of books read upon which she feels qualified to pass an examination. If this list indicates that the student has had a reading experience of adequate general culture this showing will be sufficient for the time. At some subsequent date, after entrance to the Normal School, a set of questions, special to each student's reading, will be given at a test for assignment as a class teacher. The preliminary test should show a reading experience representing roughly about seventy per cent of what these outlines suggest.

I. **List of Authors.**—The following list represents authors whose works have become so generally known that no intelligent person can safely be without some acquaintance with them. All students should see to it that they have personally read some typical works by these authors and feel qualified to pass a test showing an intelligent comprehension. In the list of significant books following, works by these authors will be found.

For the preliminary statement of reading students should list all books by these authors they have read and upon which they are willing to be tested. The test will be upon typical characteristics of the author or upon some characters, portions of plot, or problem in the books the student has read. The test will not be such as to require accurate memory of unimportant characters, details of plot or other features which could

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not be expected of a person who has not read the book in question for some time. So it is therefore not necessary to reread books in preparation for test:

(*a*) Barrie, Clemens (Mark Twain), Dickens, Burns, Byron, Browning (Robert), Churchill, Eliot, Hugo, Homer, Kipling, Ibsen, Hawthorne, Irving, Poe, Lowell, Longfellow, Maeterlinck, Stevenson, Tolstoi, Van Dyke, Shakespeare, Tennyson, Wordsworth.

(*b*) Make a list of books which you have read, written by the same or other authors, who in your judgment should be included in this list.

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II. **List of Books.**—This list has been selected to include the following types:

1. Books of children's literature and stories, either to be read by children or told to them, with which parents, aunts, uncles, sisters and teachers should ever be familiar.

(*a*) Mother Goose; **Æsop,** Fables; **Andersen,** Fairy Stories; **Burnett,** Sarah Crew; **Grimm,** Fairy Stories; **Barrie,** Peter Pan (adapted); **Baum,** Oz Books; **Carroll,** Alice in Wonderland; **Kipling,** Just So Stories, Jungle Books; **Hawthorne,** Tanglewood Tales, Wonder Book; **De Foe,** Robinson Crusoe; **Swift,** Gulliver's Travels; **Browning,** Pied Piper of Hamelin; **Muir,** Stickeen; **Sewell,** Black Beauty; **Longfellow,** Hiawatha; **Ruskin,** King of the Golden River; **Alcott,** Little Men, Little Women; **G. A. Henty,** any one of his books; **Harris,** Uncle Remus Stories.

(*b*) Make a list of books belonging to this type, which you have read but which are not included upon this list.

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2. Books about children which should be read by grown-ups because they present certain essential phases of child nature and tend to make one sympathetically *en rapport* with children.

(*a*) **Barrie,** Sentimental Tommy; **Burnett,** The Secret Garden, Little Lord Fauntleroy; **Eliot,** Mill on the Floss; **Dickens,** Old Curiosity Shop; **Fox,** Little Shepherd of Kingdom Come; **Field,** Poems; **Harte,** M'liss; **Hughes,** Tom Brown's School Days; **Kelly,** Little Citizens; **Longfellow,** Children's Hour; **Martin,** Emmy Lou; **Porter, Mrs. E. H.,** Pollyana; **Clemens,** Prince and Pauper, Tom Sawyer, Huckleberry Finn; **Stevenson,** Child's Garden of Verses; **Tarkington,** Penrod.

(*b*) Make a list of books belonging to this type which you have read but which are not included in this list.

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3. Books and poems which present healthy, stimulating ideals of human living and offer a field of "good society" for any one to enter. Also they are works which have become so widely read that, for reasons of general intelligence, no one can afford to be unfamiliar with them. It is of course not expected that students should have read every book and poem upon this list; but it is a list to keep, and as opportunity offers to make reading of it as nearly complete as possible. During the Normal School course students will be called upon to report upon familiar reading. Many standard writers and works of value have been omitted from this list because they carry no particular message, are heavy reading for young people, or for other minor reasons. With few possible exceptions the list as given will prove delightful and profitable reading to students.

(*a*) **Mary Raymond Shipman Andrews,** A Perfect Tribute; **Jane Addams,** Twenty Years at Hull House; **Edwin Arnold,** Light of Asia; **Bible Idyls** of Abraham and Isaac, Ruth, Esther, Job, Joseph, David and Jonathan, Saul, Absalom; **Robert Burns,** better known lyrics; **Robert Browning,** My Last Duchess, Andrea del Sarto, Prospice, Epilogue; **Blackmore,** Lorna Doone; **Samuel Clemens (Mark Twain),** Joan of Arc, Innocents Abroad; **James Fenimore Cooper,** any one of his novels; **Winston Churchill,** Coniston, Mr. Crewe's Career, Richard Carvel, The Crisis, The Crossing; **Samuel T. Coleridge,** The Ancient Mariner; **George Cable,** Old Creole Days, or any one of his Southern novels; **Charles Dickens,** David Copperfield, Pickwick Papers, Tale of Two Cities; **Thomas Dixon,** The Clansman; **A. Conan Doyle,** Sherlock Holmes; **Edward Eggleston,** The Hoosier Schoolmaster; **Ralph Waldo Emerson,** any one of his essays; **Paul Leicester Ford,** Janice Meredith, The Honorable Peter Stirling; **Nathaniel Hawthorne,** The Scarlet Letter; **Homer,** The Iliad or Odyssey; **Victor Hugo,** Les Miserables; **Bret Harte,** his short stories of pioneer life, Dickens in Camp, and other poems; **Ludovic Halevy,** Abbé Constantine; **Edward Everett Hale,** Man Without a Country; **Elbert**

**Hubbard,** The Message to Garcia; **Washington Irving,** Rip Van Winkle; **Helen Hunt Jackson,** Ramona; **Leigh Hunt,** Abou Ben Adhem; **Mary Johnston,** To Have and To Hold, Lewis Rand; **Rudyard Kipling,** The Recessional and other poems, Plain Tales from the Hills, Soldiers Three; **Charles Rann Kennedy,** The Servant in the House; **Helen Keller,** The Story of My Life, and some of her essays; **Omar Khayyam,** The Rubaiyat; **Henry W. Longfellow,** Miles Standish, Tales of a Wayside Inn, and shorter poems; **Bulwer-Lytton,** Last Days of Pompeii; **James Russell Lowell,** Vision of Sir Launfal; **Jack London,** The Call of the Wild, and other stories; **Maurice Maeterlinck,** The Blue Bird; **Thomas Moore,** The Fire Worshipers in Lalla Rookh; **Ian Maclaren,** Beside the Bonnie Brier Bush; **Lord Macaulay,** Horatius at the Bridge; **Joaquin Miller,** Columbus, and other poems; **Kathleen Norris,** Mother; **Gene Stratton Porter,** The Harvester, Laddie, or Freckles; **Gilbert Parker,** any one of his novels; **Thomas Nelson Page,** Red Rock, or short stories; **Edgar Allen Poe,** The Raven and other poems, The Gold Bug and other stories; **Jacob Riis,** The Making of an American; **Alice Hegan Rice,** Mrs. Wiggs of the Cabbage Patch; **James Whitcomb Riley,** Poems; **Sir Walter Scott,** any one of his novels not used as English at school; **William Shakespeare,** Hamlet, Lear, Macbeth, Midsummer Night's Dream; **Robert Louis Stevenson,** Treasure Island and any other novel, Epitaph; **Frank R. Stockton,** The Lady or the Tiger, Rudder Grange; **Henrik Sienkiewicz,** Quo Vadis; **Alfred Tennyson,** Idyls of the King, In Memoriam, Locksley Hall, Crossing the Bar, Enoch Arden; **Ernest Thompson-Seton,** Wild Animals I Have Known; **William M. Thackeray,** Vanity Fair; **Ivan Turgenev,** any one of his novels; **Maurice Thompson,** Alice of Old Vincennes; **Count Tolstoi,** any one of his novels; **Henry Van Dyke,** The Other Wise Man, The Ruling Passion and other stories; **Lew Wallace,** Ben Hur, The Fair God; **Harold Bell Wright,** The Winning of Barbara Worth, Shepherd of the Hills; **Booker T. Washington,** Up From Slavery; **Kate Douglas Wiggin (Riggs),** Rebecca of Sunnybrook Farm; **Stewart Edward White,** any of his novels; **Mary Waller,** The Woodcarver of 'Lympus; **William Wordsworth,** Ode on Immortality, We Are Seven, Tintern Abbey; **Walt Whitman,** O Captain, My Captain; **J. G. Whittier,** Songs of Labor, The Barefoot Boy, Snowbound; **Israel Zangwill,** Children of the Ghetto.

(*b*) Make a list of other books which you have read and which in your judgment should be included in this type.

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**IV. Literature of Mythology.**—Literature is studded with the names of, and allusions to, the ancient Greek mythology and many of the terms have come to have a modern significance. Many of the situations have been taken as types of certain human ideals and they offer in this way an inexhaustible body of reference material and handy analogies. The following names, stories and references represent rather a minimum of this field of knowledge and human feeling in current use. Students should be familiar with all of them. They should not be crammed but read under such conditions that the stories reach the soul. They are not as a rule given in a form complete enough in the usual compendiums of myths such as Gayley's. Many have been made famous by complete poems of modern poets.

The brief outlines are as guides to the student's reading to show what ground should be covered. You should list the items which you have read and upon which you are competent to be tested. Later a test will be given to determine chiefly whether your reading has been thorough and done in a feeling way or is merely a hasty cram of unemotional names and facts.

(*a*) You should be familiar with the following classic stories not as mere series of events but in a wholesome, comprehensive way to preserve and emphasize the artistic and emotional touches:

Judgment of Paris; The Capture of Helen; Death of Hector; Fall of Troy; Jason and Golden Fleece; Cupid and Psyche; Echo and Narcissus; Perseus and Gorgon's Head; The Minotaur; Hero and Leander; Midas; Orpheus and Eurydice; Pandora's Box; Prometheus (see Shelley's poem); Adventures of Ulysses; Ceres and Proserpina; Sacrifice of Iphigenia; Romulus and Remus; The Dragon's Teeth; Hercules and his well known labors; Hyacinthus; Description of Hades—how entered by dead, the grim ferryman, the Styx; punishment of Tantalus; Elysian Field; Damon and Pythias; Damocles.

(*b*) Be familiar with the allegorical or figurative meaning and the story or characteristic association with the following: Adonis; Elysium;

Graces; Nemesis; Waters of Lethe; Lotus; Morpheus; The Muses; Palladium; Tantalus; Terpsichore.

(*c*) The student should be familiar with the following personalities to the extent indicated; **Achilles**; characteristics; duel with Hector. **Æneas**; chief well known adventures; descent into Hades; legendary relationship to the Roman race. **Apollo**; physical beauty, significance; chief stories with which he is connected. **Venus**, other names; chief famous stories in which she appears. **Diana**; goddess of what? **Juno**; who she was; chief famous stories in which she prominently appears. **Jupiter**; other names; position in the pantheon of gods; why called the Thunderer; appropriateness of the expression "wrath of Jove." **Minerva**; birth; goddess of what? **Pan**; appearance; god of what? inventor of what? meaning of "Pan is dead." **Vulcan**; god of what? how represented?

(*d*) In a single sentence give the characteristic, office, event or significant feature of the following: Æsculapius; Æneid; Amazons; Atlas; Andromeda; Bacchus; Bacchanalia; Charon; Centaur; Cerberus; Cyclops; Dryad; Eleusinian Mysteries; Eumenides; Furies; Medusa; Harpies; Hymen; Iliad; Iris; Janus; Laocoön; Lares and Penates; Minotaur; Mercury; Mars; Nestor; Neptune; Odyssey; Mount Olympus; Omens; Delphic Oracle; Priam; Pluto; Parnassus; Pegasus; Sphinx; Satyr; Titans; Vestal Virgins.

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SAN FRANCISCO STATE NORMAL SCHOOL

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MONOGRAPH SERIES—B

## SECTION II

# ARITHMETIC

Compiled by

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### ARITHMETIC.

**Part I.** Students should be able to make clear and simple explanations of the following terms and phrases, using illustrations from practical life and business procedure:

**Phrases and terms.** Per cent; gain per cent with explanation of how we find it; profit of 15 per cent; clear explanation between a gain of 5 cents by the sale of 50 cents worth of fruit and a gain of 5 per cent upon a sale of 50 cents; appreciated in value 20 per cent; depreciated 20 per cent; realized $500 upon the transaction; market price; sold at an advance of 8 per cent; marked price; trade discount clearly and simply illustrated; wholesale merchant and retail dealer contrasted; list price; proceeds of sale; cleared 20 per cent; net profit; investment; gross receipts and net receipts distinguished; receipt; netted; ratio; catalogue price; debtor; creditor; balance on account; 2% off for cash; invoice.

Rate of interest; per annum; promissory note; gave his note for the amount; interest upon deferred payments; principal; amount; installment plan; usury; maker of the note; payee of note; face of note; maturity of note; negotiable note; non-negotiable note; note on demand; joint note; days of grace; maximum rate; mortgage; indorsed note; indorsed check; pay to the order of; difference between simple and compound interest; draft; deposited in bank; check; legal tender; difference between a savings and a commercial account; proceeds of note; bank discount; discounted the note at 60 per cent.

Purpose and process of life insurance clearly explained; insurance policy; premium; rate of insurance; dividend upon policy; expiration of policy; endowment policy; ordinary life; process of fire insurance; re-insurance; risks; underwriter.

Taxable property; real property; personal property; tax rate; assessment roll; assessed valuation; poll tax; income tax; tariffs; customs; specific duty; advalorem duty.

Bonds and stocks distinguished; government bonds; municipal bonds; bonds issued by private corporation; premium; bonded debt; stock company; stock broker; brokerage; bonds at premium; bonds below par; corporation; client; market value of bonds or stocks; stockholder; net 60 days; capital stock; declare a dividend; stock assessment; share of stock; certificate of stock; financial resources.

**II.** (While teachers, for purposes of understanding existing texts should be familiar with the following terms, it is to be hoped that with a new type of texts, teachers will be able to teach arithmetic without the use of any except a few of these terms). Illustrate by figures an explanation of the following: integer, common fraction, decimal fraction, digit, Roman numeral, multiple, least common multiple, greatest common divisor, factor, prime number, value of the fraction, prime factor, proper fraction, improper fraction, mixed number, reduction to lowest terms, changing a mixed number to an improper fraction, changing a common fraction to a decimal, an aliquot part, perfect square, power, root, cube, ratio.

**III.** Explain the difference between the two following expressions: A dealer sold prunes at a profit of 4 per cent per pound. (2) A dealer sold prunes at a profit of 4 cents per pound.

Explain clearly the difficult points of this example—A man sold his horse at a gain of 10 per cent and bought him back at 10 per cent of his selling price. Did he gain or lose per cent and how much?

In business and in arithmetical computation, is the gain or loss per cent generally estimated upon the cost or upon the selling price? Explain how we find it. Explain why it is that a straight trade discount of 25 per cent is more or less than two discounts of 15 and 10 per cent.

If a house should be insured for $2,500 upon a policy for three years and should burn down the next day, would the insurance company be expected to pay less or the same as if it should burn down the day before the policy expired? Why should stock ever be assessed?

Explain by a diagram why we can always find the area of a rectangle by multiplying the number representing the length and the number representing the width? Since both these numbers are linear and have no width how can we, by multiplying them, obtain a number representing area. Explain difference between the perimeter and the area of a field.

Show by labeled examples the following terms: addend, subtrahend, minuend, remainder, difference, multiplicand, product, multiplier, dividend, quotient, divisor, denominator, numerator.

Why is it in cancellation we can divide both numerator and denominator by the same number without changing the value of the fraction.

Explain why it is that we can never reach 2 by extending figures to the right of the decimal in 1.7.

Explain in a simple way why moving the decimal point to the left multiplies, and to the right, divides.

Explain simply, clearly and by diagram, why it is that if $12 is ¾ of all the money I have we find ¼ by dividing by 3 instead of by 4.

Why is it that when the footing of the first column in an example in addition is 27 we carry the 2 to the second column?

**Part II.** Obtain Monograph D, "How to Teach Critical Difficulties of Arithmetic." This is intended to be incorporated in this section.

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# SAN FRANCISCO STATE NORMAL SCHOOL

## MONOGRAPH SERIES—B

## SECTION II

# GEOGRAPHY

Compiled by
F. W. HOFFMANN

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## MAP AND DESCRIPTION GEOGRAPHY.

The effort has been made to outline in the following the essentials of common geographical knowledge. For a well-read person there should really be little special preparation necessary. The references to school texts which are offered will hardly give the depth and color desirable in geographical intelligence. This can be obtained only by reading of travels and the geographical settings of much of our current travel and fiction. These references will, however, generally cover the field of facts for condensed review.

References: "Advanced Geography," California State Series; Chamberlain, "How We Are Clothed," and "How We are Fed"; Carpenter's North America, South America, Europe, Asia, Africa, and "Australia, Our Colonies, and Other Islands of the Sea."

**Map Location.** Be able to locate upon outline maps of the world and continents (or portions thereof) the following features:

**On the Map of the World.** 1. Pacific ocean; 2. Atlantic ocean; 3. Indian ocean; 4. Arctic ocean; 5. Antarctic ocean; 6. North America; 7. South America; 8. Africa; 9. Australia; 10. Asia; 11. Europe; 12. North Pole; 13. South Pole; 14. Equator; 15. Rocky mountains; 16. Andes mountains; 17. Alps; 18. Mississippi river; 19. Amazon river; 20. Seine river; 21. Nile river; 22. Thames river; 23. Sierra Nevada mountains; 24. Himalaya mountains; 25. San Francisco; 26. Los Angeles; 27. New Orleans; 28. New York; 29. Washington; 30. Rio de Janeiro; 31. Cairo; 32. Paris; 33. London; 34. Hongkong; 35. Gulf of Mexico; 36. Gulf of California; 37. San Francisco bay; 38. Hudson bay; 39. Bay of Bengal; 40. Alaska; 41. Canada; 42. United States; 43. Mexico; 44. Central America; 45. Panama; 46. Brazil; 47. Hawaiian islands; 48. Philippine islands; 49. East Indies; 50. West Indies; 51. British Isles; 52. Cuba; 53. North sea; 54. Mediterranean sea; 55. Red sea; 56. Black sea; 57. Caspian sea; 58. Bering sea; 59. Great Lakes; 60. Seattle; 61. Chicago; 62. Boston; 63. Honolulu; 64. Manila; 65. Pekin; 66. Yokohama; 67. Melbourne; 68. Cape Town; 69. Constantinople; 70. Rome; 71. Berlin;

72. Isthmus of Panama; 73. Isthmus of Suez; 74. Strait of Gibraltar; 75. Bering strait; 76. Panama canal; 77. Suez canal; 78. Egypt; 79. Cape Colony; 80. Arabia; 81. India; 82. China; 83. Japan; 84. Siberia; 85. Russia; 86. England; 87. Ireland; 88. Scotland; 89. Norway; 90. Sweden; 91. Denmark; 92. Germany; 93. France; 94. Spain; 95. Portugal; 96. Switzerland; 97. Italy; 98. Greece; 99. Turkey.

**North America.** 100. Appalachian mountains; 101. Ohio river; 102. Columbia river; 103. Colorado river; 104. Yukon river; 105. Greenland; 106. Iceland; 107. Newfoundland; 108. Porto Rico; 109. Lake Superior; 110. Lake Michigan; 111. Lake Huron; 112. Lake Erie; 113. Lake Ontario; 114. Niagara river; 115. Niagara falls; 116. St. Lawrence river; 117. British Columbia; 118. Ontario; 119. Quebec (province); 120. Quebec (city); 121. Puget sound; 122. Vancouver; 123. Montreal; 124. Victoria; 125. Salt Lake; 126. Salt Lake city; 127. Rio Grande; 128. Missouri river; 129. St. Louis; 130. Philadelphia; 131. Nome; 132. Dawson; 133. Klondike region; 134. Mexico (city); 135. Havana; 136. Lower California; 137. Cape Hatteras; 138. Long Island; 139. Gulf of St. Lawrence.

**South America.** 140. Columbia; 141. Ecuador; 142. Peru; 143. Chile; 144. Venezuela; 145. Guiana; 146. Argentina; 147. Bolivia; 148. Uruguay; 149. Paraguay; 150. Plata river; 151. Orinoco river; 152. Buenos Aires; 153. Valparaiso; 154. Caribbean sea; 155. Strait of Magellan; 156. Cape Horn.

**Europe.** 157. Great Britain; 158. Wales; 159. Holland; 160. Netherlands; 161. Belgium; 162. English channel; 163. The Hague; 164. Brussels; 165. Rhine river; 166. Danube river; 167. Volga river; 168. Austria-Hungary; 169. Roumania; 170. Bulgaria; 171. Servia; 172. Montenegro; 173. Balkan states; 174 Baltic sea; 175. Adriatic sea; 176. Ægean sea; 177. Bosporus; 178. Dardanelles; 179. Caucasus mountains; 180. Pyrenees mountains; 181. Vesuvius; 182. Ætna; 183. Sicily; 184. Dublin; 185. Edinburgh; 186. Glasgow; 187. Liverpool; 188. Christiana; 189. Stockholm; 190. Copenhagen; 191. Hamburg; 192. St. Petersburg; 193. Madrid; 194. Lisbon; 195. Naples; 196. Venice; 197. Vienna; 198. Athens; 199. Moscow; 200. Odessa.

**Asia.** 201. Chinese Republic; 202. Manchuria; 203. Tibet; 204. Korea; 205. Siam; 206. Persia; 207. Holy Land; 208. Euphrates river; 209. Indus river; 210. Ganges river; 211. Yangtse river; 212. Hoang river; 213. China sea; 214. Japan sea; 215. Formosa; 216. Tokio; 217. Shanghai; 218. Canton; 219. Vladivostok; 220. Ceylon; 221. Calcutta; 222. Bombay; 223. Jerusalem; 224. Mecca.

**Africa.** 225. Morocco; 226. Algeria; 227. Tunis; 228. Tripoli; 229. Barbary states; 230. Sahara desert; 231. Sudan; 232. Alexandria 233. Kongo river; 234. Kongo State; 235. Cape of Good Hope; 236. Lake Victoria; 237. British East Africa; 238. Abyssinia; 239. Madagascar; 240. Canary islands; 241. Azores.

**Australia and the Islands of the Pacific.** 242. Borneo; 243. Sumatra; 244 Java; 245. New Guinea; 246. Tasmania; 247. New Zealand; 248. Samoan islands; 249. Fiji islands; 250. Guam; 251. Luzon; 252. Sydney; 253. Wellington; 254. Auckland.

**United States.** 255 to 302, inclusive, all the states of the United States; 303. Coast ranges; 304. Grand Canyon of the Colorado; 305. Cascade mountains; 306. Yellowstone park; 307. Potomac river; 308. Baltimore; 309. Pittsburg; 310. Buffalo; 311. Hudson river; 312. District of Columbia; 313. Cape Cod; 314. Delaware river; 315. Cincinnati; 316. Cleveland; 317. Milwaukee; 318. Detroit; 319. Denver; 320. Portland, Oregon; 321 to 378, inclusive, all the counties of California; 379. Sacramento valley; 380. San Joaquin valley; 381. Lake Tahoe; 382. Lake Tulare; 383. Mt. Shasta; 284. Cape Mendocino; 385. Farallon islands; 386. Santa Catalina; 387. Santa Rosa; 388. Eureka; 389. Sacramento; 390. Stockton; 391. Berkeley; 392. Oakland; 393. Alameda; 394; San Jose; 395. Santa Cruz; 396. San Diego; 397. Fresno; 398. Bakersfield; 399. Palo Alto; 400. Monterey bay; 401. Yosemite valley; 402. Death valley.

**Continental Highlands and Lowlands.** Upon an outline map of the world be able to indicate (1) the chief highland and lowland areas of the world; (2) show main direction of the Rocky, Cascade, Sierra Nevada, Coast, Appalachian, Andes, Pyrenees, Alps, Caucasus, Himalaya ranges; (3) to give written description of the chief continental slopes indicating whether gradual or abrupt, and mentioning characteristic features, such as perpetual snow, volcanoes, noted canyons, glaciers, etc.

**Climate.** Be able to indicate upon an outline map by means of color if required, the climatic belts (northern and southern cold belts; northern and southern temperate belts; warm belt).

**Ocean Currents and Winds.** Be able to trace upon an outline map (1) the Gulf stream; (2) Japan current; (3) Labrador current, showing direction of flow in each; (4) direction of northeast and southeast trades, and prevailing westerly winds of Atlantic and Pacific; (5) be able to explain how the highland and lowlands affect climate in these particulars. (*a*) Why the boundary line between cold and temperate regions passes along the tops of the Rocky mountains in Alaska, swings south in Canada, turns again north in the Atlantic, passes south in Sweden and Russia; (*b*) why the boundary lines of the warm belt are so straight; (*c*) explain the causes of winds and ocean currents (see Phys. Geog. 4, 5, 8); (*d*) explain the causes of difference in temperature due to latitude (see Phys. Geog. 10).

**Rainfall.** (*a*) Be able upon an outline map to indicate the regions of heaviest rainfall in the tropical and temperate belts and explain how the highlands, ocean currents, and winds influence rainfall; (*b*) explain the causes of rainfall (see Phys. Geog. 6); (*c*) be able to locate the chief arid and desert regions of the world and explain their causes in so far as highlands, winds and moisture are concerned.

**Minerals.** (*a*) Upon outline maps be able to locate the regions of which the following minerals are characteristic: gold, silver, copper, iron, coal, lead, zinc, tin, quicksilver, sulphur, petroleum, diamonds, marble; (*b*) be prepared to write intelligently upon interesting features as characteristic of the mining or reduction of any of the above.

**Plant Growth.** Be able to locate in each continent the cold barren lands of the north, regions of temperate and tropical forests, cultivated lands, grass lands, and explain the influences of highlands, or lowlands, climate, and rainfall in determining these regions.

**Plant Products.** (*a*) Upon outline maps be able to indicate the regions important in the production of lumber, tropical fruits, spices, valuable woods, cacao, rubber, tobacco, cotton, tea, sugar cane, rice, coffee, cotton, dates, raisin grapes, wine grapes, temperate fruits, grains, corn, tea, sugar beets, potatoes; (*b*) be able to explain the conditions (soil, temperature, etc.) which determine the regions best fitted for each of the productions above named; (*c*) be able to state and explain any interesting feature in the growth or curing characteristic in the treatment of any of above.

**Animal Life.** (1) Upon outline maps be able to locate the regions of which the following animals are characteristic: Fur seals, ostrich, cattle, sheep, parrots, walrus, salmon, cod, oysters, sponges, reindeer, kangaroo, tiger, crocodile, polar bear, fur bearing land animals, camels, monkeys, alligators, lion, boa constrictor, elephant, rhinoceros, condor, zebra, hippopotamus, giraffe, llama, alpaca, chamois, sledge dogs; (2) be able to give features in the habits of these animals, or uses to which they have been put which are notable or characteristic; (3) be able to illustrate in the case of animals which have particular habitats, the influences of climate, rainfall, elevation, etc.

**Population.** (1) Upon outline maps be able to indicate the regions of very "dense," and "little or no" population. (2) Be able to explain the general underlying causes of each of these varying densities of population in so far as they may be chiefly affected by climate, rainfall, plant and animal life, ocean currents, etc.

**Objects of Tourists' Interest.** Be able to point out the sight seeing features for which the following places are in any familiar degree notable: New York, Boston, Philadelphia, Washington, Chicago; the United States west of the Mississippi, Alaska, Mexico, Niagara, Yellowstone, California, Panama, Arizona, tropical Andes, London, Scotland, Ireland, Paris, Spain, Monte Carlo, Rhine valley, Russia, Venice, Pisa, Agra, Berlin, Switzerland, Rome, Venice, Munich, Greece, Egypt, the Kongo, Holy Land, Arabia, Mecca, India, Ganges, Ceylon, China, Japan, South Seas.

**Social Features.** Possess a ready intelligence upon the essential features of the following: Buddhism, Brahmanism, idolatry, the caste system of India; Mohammedism; totem poles; ancestor worship of China; American Indian's religious conceptions; the development of Africa; the awakening in Japan; the Siberian prison system; the European socialistic movement.

**Racial Characteristics.** Be able to discuss with typical illustrations the race characteristics and customs of the following peoples: American Indian, Esquimau, Negro, Arab, Hindoo, Chinese, Japanese, Mexican peons.

**Industrial Features.** (1) Be prepared to describe the characteristic features in the curing or manufacture of the following: Silk, leather, cloth, rug-making; meat, dairy products, flour, lumber, glass, porcelain, paper, steel, gas, ice, bricks. (2) Be familiar with the essential features in the following: life among the cowboys, the branding of cattle and the roundup; placer mining; a log jam; irrigation in California; passing of a ship through canal locks and the principal locks of the world; hunting the tiger in India.

# SAN FRANCISCO STATE NORMAL SCHOOL

## MONOGRAPH SERIES—B

## SECTION II

# MUSIC

Compiled by

**MARY W. McCAULEY**

## MUSIC.

In the public schools practically all teachers are expected to teach music. The demand for teaching equipment in this subject is increasing and there is also a growing demand for greater and greater thoroughness on the part of the teacher. Musical ability is also one of the most general and useful abilities of all people, especially women, who are not teachers. Nothing is more widely used or so generously appreciated in the home and social circle. Those who lack voice nevertheless often appreciate music as much as those who have, and all the training one can obtain in the subject will be valuable. Therefore, students are earnestly advised to make full use of all opportunities to acquire musical instruction.

Students upon admission will be tested upon the following courses and will be distributed as follows:

**I.** Those who pass both the elementary and advanced tests will be immediately assigned to classes as student teachers and advanced rapidly as far as possible with a view of giving them, upon graduation, a special recommendation as teachers of music. If, later, a special department of music is organized requiring one additional year in qualifying for a special diploma as a supervisor of music they will be eligible for admission without further preparation.

**II.** Those who pass satisfactorily the elementary tests will also be assigned as student teachers of music classes without further preparation. If later they pass the test for the advanced course they may be eligible to a special recommendation as a class teacher.

**III.** Those who do not satisfactorily pass the elementary test will not be assigned to class work but must first make up the work required by the elementary tests. They will therefore lose time and will necessarily be subject to certain handicaps. Students who are monotones or fail

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in subsequent tests will be treated as special cases and though probably permitted to graduate will suffer the handicap of a lack of recommendation to teach music; as practically all teachers are expected to teach music this handicap will be a serious one in securing a position.

## ELEMENTARY TESTS.

**I. Recognition of Familiar Airs—Folk, National and Patriotic Songs.** These should be promptly recognized through the ear and the student should be able to sing the simpler ones—America, The Star Spangled Banner, the Battle Hymn of the Republic, Massa's in the Cold Ground, Dixie Land. Home Sweet Home, Annie Laurie, Auld Lang Syne, The Wearin' of the Green, The Last Rose of Summer, Believe Me if all Those Endearing Young Charms, The Watch on the Rhine, How Can I Leave Thee, God Save the King, Rule Britannia, Drink to me Only With Thine Eyes, The Men of Harlech, All Through the Night, Santa Lucia, The Marseillaise, The Austrian hymn, The Russian hymn. Add to this list others of the same type which you can recognize or sing.

**II. Supplementary List.** Students who expect immediate assignment should be able to recognize through the ear and to sing most of these: Marching Through Georgia, The Old Folks at Home, Old Black Joe, My Old Kentucky Home, Tenting on the Old Camp Ground, Tramp—Tramp—Tramp, Rocked in the Cradle of the Deep, Yankee Doodle, Robin Adair, Comin' Through the Rye, Ye Banks and Braes, The Blue Bells of Scotland, Loch Lomond. Flow Gently, Sweet Afton, The Harp that once Through Tara's Hall, The Minstrel Boy, The Lorelei, The Hemlock Tree, The Merry Heart, Juanita, Love's Old Sweet Song (Molloy), Sweet and Low (Barnby), The Warrior Bold (Adams), O! Holy Night (Adam), Silent Night (Haydn), Nancy Lee (Adams), Sailing (Marks), Anchored (Watson), The Palms (Faure), The Holy City (Adams), Last Night (Kjerulf), Lullaby (Brahms), Out on the Deep (Lohr), The Angel's Serenade (Braga). The Erl King, Hark! Hark the Lark, Who is Sylvia, The Serenade (Schubert), O Wert Thou in the Cauld Blast (Mendelssohn). This list is not complete and other standard songs should be added; also, the better known selections from the standard operas and the solos and well known choruses from the great oratorios.

**III. Notation and Terminology.** There should be a **working** knowledge of musical technique and terminology. By this is meant that the student be able to **demonstrate, by voice and through the ear,** ability in the use of the following: Naming and use of lines, spaces, brace, leger lines, bass and treble clefs, Great Staff, location of middle C; notes and rests and their values, the effect of sharps, flats, double sharps, double flats and naturals; the value of dots placed after notes and rests; the effect of the tie, slur, hold or pause; use of measures, bars, double bars, meaning of term "phrase"; time signatures or meter marks; double and triple time, triplets, simple and compound time, accent, syncopation; the difference between time and rhythm; major, minor and chromatic scales; the relation of the tetrachord to the major scale; building the major scales; finding keynotes from the signature; pitch names, scale names and syllable names of the major and minor scales; pitch names A, B, C, D, E, F, G; scale names 1, 2, 3, 4, 5, 6, 7, etc.; syllable names, Do, Re, Mi, Fa, Sol, La, Ti, Do. The student should be able to recognize all major and minor scales, give keynotes, signatures in correct order, and be able to write them and sing them; should recognize the different meters through the ear as well as eye, and be able to write short, simple phrases in all keys from dictation; should sing two and three-part songs and exercises, containing undivided and evenly divided pulse sustaining either part at sight, using the syllables; should know the use of the trill, turn, grace notes, appoggiatura, arpeggios, marks of repetition; first and second endings, repeats; should own and be familiar with the use of a chromatic pitch pipe.

**IV. Elementary Harmony Test.** This test represents a working ability in the elements of harmony. The test will require not only knowledge of the facts in answer to questions but applied ability in ready vocal expression. Names of the degrees of the Scale—Tonic, dominant, etc.; intervals of the major scales—Minor **second**, perfect fourth, etc.; triads of the major and minor scales and their inversions. The student should be able to recognize the intervals and triads through the ear; also to sing them, to play them on the piano, and to write them on the staff. The application of the knowledge is the ability to write a second part for a simple song; to transpose to a higher or lower key any song or exercise which does not suit the voices; to analyze the chords and intervals in simple songs; and to recognize and to analyze modulations in songs.

**Advanced Course.** For the present a limited number of students seeking recommendation as supervisors of music will be admitted to an advanced course of one year. Such students must submit the following qualifications:

1. A diploma of graduation from a normal school or two years' experience as a teacher in the public schools.
2. A thorough knowledge of music represented by the elementary requirements together with the history of music.
3. A true singing voice.
4. A thorough ability to play piano accompaniments.
5. Ability to appreciate and analyze standard voice, piano and orchestral compositions.

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